

A Joint  
Publication  
for U.S.  
Artillery  
Professionals

March - April 2012

# Fires

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## Shaping Fires for 2020:

**Offensive and Defensive Fires in Support  
of America's Force for Decisive Action**

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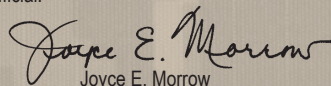
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**PURPOSE:** Founded in 2007, *Fires* serves as a forum for the professional discussions of all *Fires* professionals, both active and Reserve Component (RC); disseminates professional knowledge about progress, developments and best use in campaigns; cultivates a common understanding of the power, limitations and application of joint *Fires*, both lethal and nonlethal; fosters joint *Fires* interdependency among the armed services; and promotes the understanding of and interoperability between the branches, both active and RC, all of which contribute to the good of Army, joint and combined forces, and our nation.

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On the cover: Battery A, 2nd Battalion, 320th Field Artillery, 1st Brigade Combat Team, 101st Airborne Division, fire their M119 howitzer during their battery air assault raid. (Photo by SGT Jon Heinrich, U.S. Army)



regiment and battlefield coordination detachment (BCD) headquarters; 13 per FA/Fires battalion/squadron; 3 per fire support element (FSE), Fires and effects cell (FEC), effects coordination cell (ECC) fire support cell (FSC), and separate battery or detachment; 2 per fire support team (FIST); and 1 per Master Gunner. Free copies to Army ADA units: 7 per air and missile defense command (AAMDC) and ADA brigade headquarters; 13 per ADA battalion; and 3 per air defense airspace management cell (ADAM) and separate battery or detachment. The FA and ADA Schools' departments, directorates and divisions each get 2 copies. Other Army branch and US armed services units/organizations and US government agencies that work with FA or ADA personnel, equipment, doctrine, tactics, training organization or leadership issues may request a free copy—including, but not limited to—ROTCs, recruiting commands, libraries, attaches, liaison officers, state adjutants general, public affairs offices, military academies, laboratories, arsenals, major commands, etc. Contact *Fires* at <http://sil-www.army.mil/firesbulletin/>.

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## Shaping Fires for 2020 Offensive and Defensive Fires in Support of America's Force for Decisive Action

**By MG David D. Halverson**

Commanding General of the Fires Center of Excellence  
and Fort Sill, Okla.

In a recent interview with *Ground Combat Technology* magazine, I was asked about some of the key accomplishments of the Fires Center of Excellence (FCoE). My first thought was how proud I am of the way our two branches, Field Artillery and Air Defense Artillery, have integrated into a single Fires force. While each branch maintains its own distinct differences and identity, our leaders have embraced the importance of shared knowledge and the value the Fires force brings to the fight. Junior and senior leaders of each branch now have a greater understanding of both offensive and defensive Fires. Knowing the capabilities and limitations of each branch allows both to more effectively support the joint commander and gives an added depth and versatility to both. More importantly, it makes all of us more well-rounded as professional Fires Soldiers and prepares us to make more informed decisions as we equip and shape the Fires force of 2020.

The joint environment we foster at Fort Sill is setting the standard for our Army. The Fires force is building our partner capacity through security cooperation activities such as joint air defense exercises, ongoing training and leader development. We work closely with partner and host nations around the world to provide regional and international security. The ADA School is teaching 10 courses for *Air Defenders* from 25 different countries at Fort Sill and providing partner nations, including Germany and Australia, with complete system training for Patriot and C-RAM systems. Approximately 60 countries send students to various courses at the Field Artillery School annually. The Joint Fires Observer course trains our Army's future leaders on the realities of the joint and coalition environment and will make an immediate difference in the outcome of future battles.

Our Fires force is truly living the words of GEN Raymond T. Odierno as he describes the Army's role in three simple words: "Prevent, Shape, Win." If you have not done so, I suggest you read Odierno's blog at <http://armylive.dodlive.mil/index.php/category/general-raymond-ray-odierno-chief-of-staff-of-the-army/>. The



level of training we provide our Soldiers is unmatched by any other army in the world. To prevent potential opponents from waging war, the first deterrent is our "realistic training, expert leaders, modern equipment, and quality Soldiers." The FCoE has incorporated gaming and simulation applications into ongoing training. Programs such as 'Danger Close,' the 'Collateral Damage Decision-making Tool,' and 'Virtual Platoon,' allow Soldiers to experience virtual situations in a safe environment where mistakes or bad decisions do not cost lives. This training develops leaders who may not yet have combat experience, but will still have a definite edge on an enemy facing similar situations with no prior experience on which to draw. Challenging our Army's ability to fight and win any war must be an unacceptable option for potential adversaries, thus preventing an escalation to armed conflict.

"Second, our Army must help shape the international environment so our friends are enabled and our enemies contained." Again, the Fires force sets the standard for the Army. Our foreign visits have almost doubled in the past two years, and we host hundreds of allied students every year, including Saudi Arabia, United

Arab Emirates, and Singapore, to name a few. Our Fires officers are routinely assigned missions in theater, which require direct communication with local leaders. These assignments come to Fires leaders not because of their ability to fire rounds, but because of their ability to quickly adapt to any situation in which they find themselves. Today, we expect more from our young leaders than we have at any point in recent history. To ensure their success, we are working to produce curriculum and training opportunities to produce Fires Soldiers and leaders who are culturally astute and 100 percent capable of operating in joint, interagency, intergovernmental, and multinational (JIIM) environments.

Our Fires force has proven over and over again that we are prepared, trained, and ready to dominate and win current and future battles. Although we must be good stewards of our resources while we train to fight and win, a decisive win is the end state of all artillery endeavors. "Nothing else can approach what is achieved by winning and the consequences of losing at war are usually catastrophic." Although the future of warfare cannot be perfectly predicted, we continue to focus on leader development and the amazing flexibility of our Fires force and structure. We have the ability to support all joint commanders, simultaneously, in combined arms maneuver and wide area security, while providing our national security decision-makers the flexibility of a world-wide, deployable and capable missile defense and field artillery arsenal.

COL Gene Meredith's article in this issue is a direct result of a TDY trip to Afghanistan to assess the use (or lack of use) of precision munitions. It has some 'eye opening' findings that we as fire supporters must acknowledge and address to disrupt the skill atrophy of surface-to-surface and indirect Fires. When the maneuver commander relies more heavily on air support than artillery, his ability to win the fight may very well depend on clear skies versus precision munitions. We MUST educate and re-train the force on core artillery skills and the superior capabilities of our arsenal in order to win future battles.

The "Prevent, Shape, Win" construct truly defines the role of the Army and within it, the role of our Fires force. We are entering a period of transition. During this time, all of our leaders must be engaged to ensure that we have the right mix of capabilities to provide effective offensive and defensive fires to the joint force in any environment. Your experience and insights into shaping the Fires force of 2020 are incredibly important. I strongly encourage you to share your thoughts on my blog, which can be accessed at <http://usacablogs.army.mil/firescenterofexcellence/>. Social media opens lines of communications that were almost unimaginable when I was a young lieutenant. You have the ability to communicate directly to most of your senior leaders through Facebook, Twitter, and various

blog sites. I read and respond to all posts on my blog, and I want to hear your thoughts on how we can ensure we are postured to support the joint force of 2020 with responsive and decisive offensive and defensive Fires.

Vince Lombardi once said, "The achievements of an organization are the results of the combined effort of each individual." This statement is as true about our Army as it was about a football team. We do not operate in a vacuum and when an individual or unit succeeds, we revel in their victory. In this issue you will find the winners of the Knox, Hamilton, Gruber, and Shipton awards for both unit and individual excellence. I am extremely proud of these Soldiers' contributions and accomplishments. They represent the very best of the Army and the Fires force. Please join me in congratulating all of these winners. Nominations for these awards are accepted annually by the Field Artillery Proponency Office and the Office of the Chief of Air Defense Artillery at Fort Sill. As the year progresses, leaders need to be mindful of the outstanding achievements of their units and Soldiers and take the time to recognize excellence when you see it.

As this issue of the *Fires Bulletin* hits the field, plans are well underway for the 2012 Fires Seminar. Mark your calendars for May 14-18, and try to work it into your schedules to attend, either in person or via DCO connect. Once final coordination is complete, we will post a link to the website registration page on our homepage at <http://sill-www.army.mil/>. Although the agenda and guest speakers are not finalized at this time, the site will be updated with current and easily accessible information as details unfold. The seminar will be held at the McMahon Centennial Complex at Cameron University in Lawton, Okla., with many of the evening activities on Fort Sill. This year's theme is 'Shaping Fires for 2020: Offensive and Defensive Fires in Support of America's Force for Decisive Action.'

GEN Robert W. Cone, TRADOC commanding general, said, "To shape the Army of 2020, we have to understand the Army profession today. After a decade of war, we must take stock of our profession, examining our strengths and weaknesses so that we can prepare our Army for future uncertainties." In the last decade, Fires has proven to be a decisive force available to the joint commander. By virtue of the varied responsibilities of the Field Artillery and Air Defense Artillery, our leaders are poised to lead Fires into the future. As we assess our profession, the Fires role in the Army and joint force of 2020, we will rely heavily on the talents of our experienced and innovative leaders. Increased focus on our profession and leader development will ensure we remain an adaptable, agile force, poised to overcome all future threats to our nation.

**Fit to Fight! Fires Strong!**

# Letters to the Editor

The staff of the *Fires Bulletin* invites you to share your thoughts in our newest section, 'Letters to the Editor.' We are hopeful this effort will improve the magazine, as well as provide you a viable alternative to voice opinions, raise issues, comment on articles, ask questions, or just let us know how we're doing. We are very proud to launch this section in our March/April issue to solicit input for future issues. We want the *Fires Bulletin* to be a source of two-way communication in which the entire Fires force has equal access and input.

The *Fires Bulletin* is your magazine and we want to hear from you! Send your comments to [fires.bulletin@us.army.mil](mailto:fires.bulletin@us.army.mil) or [shirley.k.dismuke.civ@mail.mil](mailto:shirley.k.dismuke.civ@mail.mil) with the subject: 'Letters to the Editor.' Our space is limited but we will print, and answer if appropriate, as many letters as possible. If voicing a negative comment or opinion, we ask you do so in a professional manner. Providing 'constructive criticism' as a learning tool is always a good thing.

We will also consider publishing original drawings, cartoons, or unique photographs with a Fires theme. All submissions, whether articles or artwork, should include the author's name, unit, mailing and email addresses, and phone number if available. If you do not want this information made public, you may request any of the information, be withheld from print.

The *Fires Bulletin* remains committed to providing the absolute best product possible. Several readers have contacted us regarding errors in the 2011 Redbook. Our apologies go out to the units who were missed in spite of our best efforts. The magazine staff worked very hard to ensure every unit was listed on the map. The online map has been updated as corrections were received, and all of those will be include in the 2012 Redbook. To ensure each unit gets proper recognition, all commanders should submit a short (limited to 250 words or less) 'year-in-review' write-up for their respective units. Deadline for submissions for the 2012 Redbook is August 2012, so you have plenty of time to document significant activities and capture them with photos.

The staff and I look forward to hearing from you and making 2012 the best year ever for our *Fires Bulletin* readers and the Fires community.

Shirley Dismuke  
Editor-in-Chief



# The US Army Space Badge

By Paul E. Jiron

Qualified members of the Army space cadre community can now show their level of expertise by wearing the Army's new Space Badge. The badge has three levels: basic, senior and master. The badge is approved for wear by active-duty Soldiers, as well as National Guard and Reserve Soldiers who have completed the appropriate space-related training along with attaining the required space cadre experience.

For active-duty Soldiers, the Basic Space Badge is awarded after 12 months, the Senior Space Badge after 48 months and the Master Space Badge after 84 months as Army space cadre. For National Guard and Reserve Soldiers, the Basic Space Badge is awarded after 48 months, the Senior Space Badge after 60 months

and the Master Space Badge after 96 months as Army space cadre.

General officers may be awarded the Space Badge after serving in an Army space cadre position for one year and completing the Advanced Space Operations School's (ASOpS) Space Operations Executive Levels Course. The Senior and Master Space Badge may be awarded at 12-month increments thereafter.

The U.S. Air Force Space Badge was originally approved by the Air Force in November, 2005. In 2006, the U.S. Army Space and Missile Defense Command / Army Forces Strategic Command requested and received approval to award the Air Force Space Badge to Army space cadre. In June 2010, the commander of the Air Force Space Command

approved a modification request and recommended the Army establish the Air Force Space Badge as a unique Army badge. On Feb. 2, 2011, the U.S. Army Chief of Staff approved the establishment as a group four Army badge. With establishment as an Army badge, the term 'Air Force' was dropped from the name and the badge is now called the Space Badge.

Although not currently listed in Army Regulation 670-1, *Wear and Appearance of Army Uniforms & Insignia*, additional information can be found at [http://www.armyspace.army.mil/Pic\\_Archive/ASJ\\_PDFs/ASJ\\_VOL\\_5\\_NO\\_2\\_Z\\_FLIP\\_7.pdf](http://www.armyspace.army.mil/Pic_Archive/ASJ_PDFs/ASJ_VOL_5_NO_2_Z_FLIP_7.pdf) or by emailing FA40-SPACE@smdc.army.mil. Proper wear and award of the Space Badge will be addressed in the next update of AR 670-1.

## BG Brian McKiernan Honored as the 49th Commandant of the Field Artillery School and Chief of the Field Artillery



(Left to right) MG David Halverson, Fires Center of Excellence and Fort Sill commanding general, and BG Brian McKiernan salute the flag as the colors are presented at a retreat ceremony at Fort Sill, Okla., honoring McKiernan as the 49th commandant of the Field Artillery School and chief of the field artillery on January 18, 2012. (Photo by Ben Sherman, U.S.

Army)

# BG Heidi V. Brown promoted to the rank of Major General

Army BG Heidi V. Brown was promoted to the rank of Major General during a ceremony Jan. 13, 2012 at Redstone Arsenal, Ala. LTG Patrick J. O'Reilly, director of MDA, and LTG Robert P. Lennox, deputy chief of staff, G-8 U.S. Army, officiated the ceremony.

Brown is the Director for Test for MDA and is responsible for planning, programming, budgeting, staffing, and managing a comprehensive Ballistic Missile Defense System test program. The BMDS will protect our homeland, Soldiers, allies and friends against all types of ballistic missiles in all phases of flight.

Brown is a 1981 graduate of the United States Military Academy at West Point, N.Y. Over the course of her military career, she has served in a variety of command and staff positions in the Air Defense Artillery branch, including commander, 31st Air Defense Artillery Brigade, III Corps; chief of staff and deputy commander of the U.S. Army Air Defense Center and assistant commandant of the U.S. Army Air Defense School at Fort Bliss, Texas; deputy commanding general

(sustainment) at Fort Lewis, deputy Commanding General (Sustainment), Multi National Corps - Iraq; and most recently, director of integration, office of the deputy chief of staff, G8. As commander of the 31st Air Defense Artillery Brigade, Brown was the first woman to command and lead an Air Defense Artillery brigade into combat and has the added distinction of being the first female general in the Air Defense Artillery branch.

Brown's awards include the Legion of Merit with four Oak Leaf Clusters, the Bronze Star Medal with one OLC, the Defense Meritorious Service Medal, Meritorious Service Medal with six OLC, the Army Commendation Medal with five OLC, the Joint Services Achievement Medal, and the Army Achievement Medal with four OLC. She is also authorized to wear the Parachutist Badge, the Air Assault Badge, the Joint Chiefs of Staff Identification Badge, and the Army Staff Identification Badge.

Brown holds a bachelor's degree from the United States Military Academy, a master of Education

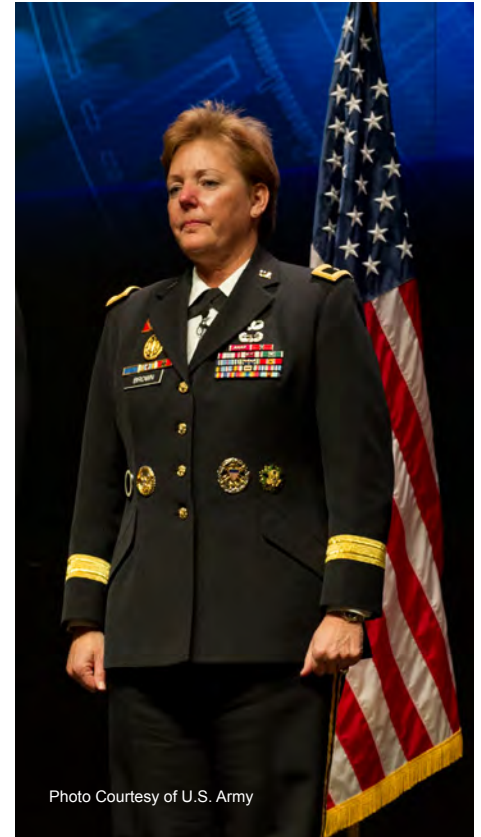


Photo Courtesy of U.S. Army

in Student Personnel Services, University of South Carolina, and a masters in Strategic Studies, the Army War College.



## Reunion Announcement



### Kilo Battery, 4th Battalion, 13th Marines

Kilo Battery will hold its 3rd reunion in Wilmington, N.C., May 2-7, 2012. Anyone who has served in or was attached to Kilo Battery is invited to attend. The point of contact for the event is:

Tom Gafford  
Phone: (434) 369-8032  
E-mail: tag30@me.com  
Website: www.kilo413.com





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US Army Field Artillery School

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Flickr:

Fort Sill Cannoneer

<http://www.flickr.com/photos/fortsillcannoneer/>

US Army Field Artillery School

<http://www.flickr.com/photos/redleglive/>

# 2011 Air Defense Artillery Henry A. Knox Award

The Henry A. Knox Award recognizes the outstanding active duty U.S. Army Air and Missile Defense Battery of the year for superb mission accomplishment and overall unit excellence. The 2011 Air Defense Artillery Henry A. Knox Award has been awarded to:

## Delta Battery, 5th Battalion, 7th Air Defense Artillery

The tactical proficiency of Delta Battery, 5th Battalion, 7th Air Defense Artillery, headquartered in Germany, far surpasses that of any other battery within the 5-7 ADA. Over the past year, Delta Battery was the only battery, to Table VIII certify three engagement control station (ECS) and battery command post (BCP) crews, as well as 11 launcher reload crews and two forklift and guided missile transporter reload Crews, during gunnery certifications. Delta Battery performed well above the standard, by winning the battalion's best ECS, AMG, and BCP crew awards, which subsequently clinched the title for 'Best Battery' for the second time in one fiscal year. Well above the Army standard of 90 percent, Delta Battery's current operational readiness rate, 96.4 percent, is the best among the batteries in its battalion and goes hand-in-hand with having one of the best maintenance programs in the battalion. The battery conducted three battalion rail-load operations, in support of Patriot to Poland, with zero safety incidents or property loss, and dominated

the battalion command inspection program, receiving the Best Safety Program award and a Commendable rating for their Physical Security Program. The supply room is currently competing at the Department of Army (DA) level for the Best Supply Room Army-wide for the Supply Excellence Award. Delta Battery remains on track for perfect record keeping and liability of every piece of equipment through meticulously kept records and 100 percent monthly property book accountability.

The Soldiers and NCOs of Delta battery continue to excel and are a daily testament of Delta Battery's high standards; for example, the battery has consistently maintained an Army Physical Fitness Test (APFT) average of more than 250 points, as well as having Soldiers in the 357th AMD-D Best Warrior Competition and USAREUR-level competitions. They also promoted 15 Soldiers to the rank of sergeant or higher. The battery has proven to be an agile, adaptable and decisive force serving as a standard of the ADA and Fires community.

Soldiers from Delta Battery, 5th Battalion, 5th Air Defense Artillery demonstrate missile reload procedures at Baumholder, Germany, during a battalion field training exercise. (Photo courtesy of the U.S. Army)



# 2011 Air Defense Artillery Alexander Hamilton Award

The Alexander Hamilton Award recognizes the outstanding U.S. Army National Guard Air and Missile Defense Battery of the Year for superb mission accomplishment and overall unit excellence. The 2011 Air Defense Artillery Alexander Hamilton Award has been awarded to:

## Headquarters Battery Forward, 2nd Battalion, 263rd Air Defense Artillery

The 2011 winner of the Hamilton Award is Headquarters Battery Forward (HBF), Anderson, S.C. The unit has made a positive impact in the local community by volunteering more than 2,100 hours, donating more than \$15,000.00 to the command family emergency relief and other organizations, and more than 250 units of blood and platelets to local hospitals.

Since November 2010, individual recognitions include five Meritorious Service Medals, 33 Army Commendation Medals and 26 Army Achievement Medals. The battery is a quick reaction force, commonly known as the Deployable Integrated Air Defense System (DIADS) Minimum Deployment Package (MDP). Currently in its third year of deployment, the battery's superb achievements and mission accomplishments epitomize the true essence of Alexander Hamilton.

They successfully deployed throughout the U.S. and

provided Sentinel radar coverage for presidential support missions in eight states, traveling over 30,000 miles, via commercial vehicle or air transportation, without injury or loss of equipment. They successfully participated in Exercise Vigilant Shield 12 integrating their Sentinel radars and equipment, fortifying our nation's homeland defense. In January 2011, on mission to Manitowoc, Wis., the battery's specified tasks were to ensure the AN/MPQ-64 Sentinel radars remained operationally capable to defend the president against potential aerial threats. One of the radars went down and in spite of the frigid conditions, the battery was able to quickly identify the issue, order parts, and repair the radar within hours--reducing the possible risk of mission failure. HBF proved to be an agile, adaptable and decisive force, as well as contributing significantly to the legacy of the branch, Fires community, the Army and the nation.

President Barack Obama stops at a unit barbecue in Osawatomie, Kansas, Dec. 6, 2011. (Official White House Photo by Pete Souza, U.S. Department of Defense)



# 2011 Air Defense Artillery James A. Shipton Award

The James A. Shipton Award recognizes a U.S. Air Defense Artillery professional for outstanding performance and contributions that significantly enhanced the Air Defense mission. The winner of the 2011 Air Defense Artillery James A. Shipton Award is:

## CPT Will Andrews, Charlie Battery, 2nd Battalion, 44th Air Defense Artillery

The 2011 winner of the Shipton Award is from 2nd Battalion, 44th Air Defense Artillery Regiment, Fort Campbell, Ky. As a first lieutenant, CPT Will Andrews served as the senior training advisor, Afghan National Civil Order Police (ANCOP) regional training center (RTC), Methar Lam, Afghanistan, where his contributions were invaluable. Andrews' success, in mentoring and advising the commander, cadre and staff there will ultimately help develop a strong Afghan-US relationship, as well as enhance daily operations. As an Avenger Platoon Leader, he led his platoon to victory at the Avenger Gunnery competition. He effectively pioneered the tactics, techniques, procedures (TTP) for

training (Avenger Gunnery and Gunner Leader) and deploying the battery, which has become the battalion standard. Andrews embodies the Army values; scoring more than 300 points on the Army Physical Fitness Test (APFT) and qualifying expert on his M9 pistol and M4 carbine. Andrews is active in community activities, such as outreach programs that collect food, toys and school supplies for disadvantaged families in the Fort Campbell and Clarksville areas, as well as communities in the Laghman province, Afghanistan. His technical and tactical expertise, leadership, high standards and care for Soldiers have marked him as a true leader within the ADA, Fires community and the Army.

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CPT Will Andrews performs range clearing mission, allowing his team's Afghanistan counter parts to properly train their students with realistic live fire exercises. (Photo courtesy of the CPT Will Andrews)



# 2011 Field Artillery Henry A. Knox Award

The Henry A. Knox Award recognizes the outstanding Active duty Army Field Artillery Battery of the year for superb mission accomplishment and overall unit excellence. The 2011 Field Artillery Henry A. Knox Award has been awarded to:

## Headquarters Battery Forward, 3rd Battalion, 320th Field Artillery

This battery was the nucleus of Task Force Red Knight during the 3rd Brigade Combat Team, Rakkasan, deployment to Regional Command East, Afghanistan, in support of Operation Enduring Freedom 10-11.

TF Red Knight was a composite unit commanded by 3-320th FA, consisting of two infantry companies, an engineer company, a forward support company, a Vermont Army National Guard infantry company, and two organic field artillery batteries. HHB had a diverse and difficult support mission coordinating air assault and air transport, providing liaison with U.S. Army Rangers, and counter-fire radar support at Combat Outpost Sabari. Delta Company, 3-187th Infantry was the land holder in Sabari and Bak districts in Khost. This area was a critical logistics route.

HHB had several accomplishments during the course of their deployment which included the radar section

tracking more than 500 rockets and recoilless rifle rounds, and the Focused Targeting Force (FTF) distinguishing themselves in two particular missions – while assaulting an ambush near Combat Outpost Cheratow in early spring 2010, and rescuing stranded Afghan civilians from the monsoon floods in July 2010. HHB also played an instrumental role in the defense of Forward Operating Base Salerno in July 2010 after more than 50 insurgents sought to kill as many U.S. Soldiers as possible in a suicide attack.

At the conclusion of their deployment, HHB Soldiers had received abundant awards for valor and achievements. These included: one Soldier's Medal, 15 Bronze Star Medals, four Air Medals, one Bronze Star Medal with Valor, numerous Army Commendation Medals with Valor, and one Honorable Order of Saint Barbara.

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Soldiers from Headquarters Battery Forward, 3rd Battalion, 320th Field Artillery pose in front of a helicopter. (Photo courtesy of the U.S. Army)



# 2011 Field Artillery Alexander Hamilton Award

The Alexander Hamilton Award recognizes the outstanding U.S. Army National Guard Field Artillery Battery of the Year for superb mission accomplishment and overall unit excellence. The 2011 Field Artillery Alexander Hamilton Award has been awarded to:

## Bravo Battery, 1st Battalion, 623rd Field Artillery

This Army National Guard battery had one of the most demanding years in the history of its battalion. The battery had several accomplishments during 2011; besides completing rigorous training that led to successful certification of all crews and weapons systems, they also successfully conducted convoy operations from home station in Campbellsville, Ky., to Fort Chaffee, Ark., for annual training for a total distance of 1,284 miles. The *Stallion Warriors* also

conducted 16 state active-duty missions to support the communities within Taylor, Marion, Green and Adair counties. These missions included positive community relations at county fairs, fall festivals, and the Bluegrass State Games. The unit also supported flood relief efforts in Western Kentucky. The battery maintained a 96 percent strength level throughout training year 2011 and 87 percent of its Soldiers were MOS qualified.

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Soldiers from Bravo Battery, 1st Battalion, 623rd Field Artillery participate in bridge crossing operations. (Photo courtesy of the U.S. Army)



# 2011 Field Artillery Edmund L. Gruber Award

The Edmond L. Gruber Award recognizes an outstanding Field Artillery Soldier for superb individual thought, innovation and overall excellence that results in significant contributions to or the enhancement of the Field Artillery's war fighting capabilities. The winner of the 2011 Field Artillery Henry A. Knox Award is:

## SFC Malcolm A. Lewis, Alpha Battery, 3rd Battalion, 321st Field Artillery

This field artilleryman displayed unquestionable personal courage and selfless service when faced with harsh and hostile conditions at Forward Operating Base Andar, Afghanistan, while deployed to Operation Enduring Freedom XI-XII.

Among his numerous accomplishments include drastically improving the conditions his Soldiers lived and worked in during deployment, while supervising more than 1,000 rounds fired in support of maneuver forces in Task Force Iron's (3rd Battalion, 187th Infantry, 101st Airborne Division) and Task Force Ramrod's (2nd Battalion, 2nd Infantry, 1st Infantry Division) areas of

operations. Also while deployed, his platoon fired more than 30 lethal fire missions resulting in more than 60 insurgents killed in action and 100 wounded in action. Most noteworthy, Lewis demonstrated exceptional technical and tactical skills as he led his team in the employment of the new Excalibur precision guided munitions, which resulted in precision lethal effects on enemy positions. Throughout the deployment, 3rd platoon also routinely fired counter-fire missions which suppressed enemy indirect fire teams and preserved friendly combat power.

SFC Malcolm A. Lewis (center front) poses with his Soldiers in Afghanistan. (Photo courtesy of the U.S. Army)



# Final Push Needed in Afghanistan: A New Approach is Available

By Robert Sharp

**W**e seek a solution to Afghanistan. We wish to exit with grace. We also wish to leave the country better than it was in recent decades. But what is the right approach to counter the problems in Afghanistan? We have tried enemy-centric and people-centric approaches, which have not succeeded as well as we would have liked. We need to examine a third complementary approach; a leader-centric approach. This approach directs our efforts to change the culture of our Afghan counterparts through our leadership with the aim of enabling Afghans to win the peace. All three approaches are needed during a final push.

**E**nemy-centric approach. Let me first review the enemy-centric and people-centric approaches. Ralph Peters is a retired U.S. Army lieutenant colonel and author of more than 20 books. His enemy-centric approach, approach one, is and has been used in Afghanistan. It is vividly described in his book, "Wars of Blood and Faith," in which he suggests we must 'kill or be killed;' the age of wars over "isms" (communism, fascism, nationalism and nazism) are over. Peters believes the war is now tribe versus tribe in a war to the death. He believes that the enemy's strategy is no longer one of hearts and minds, but of violence; a knife to the heart

and bullet through the brain. Peters concludes our leaders' apparent failure to adopt his approach is a road to national suicide.

**P**eople-centric approach. GEN Sir Rupert Smith advocates a people-centric approach in his book, 'Utility of Force.' The concept of war among the people can be explained by using the analogy of a Roman coliseum. Imagine the scene: three competing teams of blood-letting gladiators and a large crowd watching. But the prize is not beating the other teams, it is winning the crowd.

The crowd is the prize; they are the ones who determine whether

you will be given a thumbs-up or a thumbs-down. They decide whether you live or die. War is fought among the people and the objective of the military fight--both kinetic and non-kinetic--is winning the hearts and minds of the people.

It is my belief, war among the people was prototyped by Smith in Northern Ireland during 1996 to 1998, when he was the senior British military commander. I had the privilege to serve under Smith in Northern Ireland. His goal was to drive a wedge between the terrorists/insurgents and the ordinary decent people. He did this by changing mindset and tactics to support his





SPC Ricardo Gonzalez, 2nd Battalion, 8th Field Artillery Regiment, 1st Stryker Brigade Combat Team, 25th Infantry Division, spends his Thanksgiving pulling security at an entry control point in Afghanistan, Nov. 24, 2011. (Photo by SGT Thomas Duval, U.S. Army)

strategic goal. For example, soldiers patrol with berets rather than helmets and without magazine clips on their rifles.

Changes in tactics made our soldiers more approachable, enabled development of greater rapport among the people, and over time led to a change in the attitudes of the people towards the British army. Although arguable, I believe the change to a people-centric approach under Smith helped create conditions for the Good Friday Agreement, signed on April 10, 1998, which effectively marked the end of the troubles. Smith saw the utility of the British army working among the people. This, in turn, encouraged the people to seek solutions through politics rather than violence.

**L**eadership approach. More recently, we have heard of a leader-centric approach, approach three. This approach often refers to building government capacity. In

places like Afghanistan, the most critical challenge in a leader-centric approach, I believe, is changing the culture of those in positions to govern both at the national and, most importantly, at the local level. The leader-centric approach is all about changing culture through leadership. Let me explain to you what I mean.

First, we need to define culture as it has been variously defined. Culture, is defined by Edgar H. Schein - a psychologist and a professor at MIT Sloan School of Management - in his book, "Organizational Culture and Leadership," as a "pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration. That had worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think and feel in relation to those problems." Put simply, culture is how things are done.

Stein believes culture and leadership are different sides of the same coin. He believes, "the bottom line for leaders is that if they do not become conscious of the cultures in which they are embedded, those cultures will manage them." Where things are not getting done successfully, culture needs to be transformed. In such cases, good leadership changes the culture by showing how things should be done.

The challenge, in places like Afghanistan, is to instill a culture enabling Afghans to win the War on Terror for themselves, not to win it for them. Our challenge, in Afghanistan, is to forge a winning culture among our partners in the Afghanistan National Army, police and with local leaders.

This challenge calls upon us to be good leaders, with the primary purpose of transforming the culture with whom we partner. We must teach them, by our good leadership,

how things 'should' be done to be effective, changing their culture.

So what makes a good leader? Analysis by Dr. Mark Moyar, author of three books on counterinsurgency, the most recent one entitled, "A Question of Command: Counterinsurgency from the Civil War to Iraq," articulates the leader-centric approach and identifies the qualities needed for effective leadership. These include charisma, judgment, initiative and integrity, which are all qualities expected of a military leader. But also listed are flexibility, creativity, empathy and social skills, which are not normally associated with a military leader. As an advocate of Daniel Goleman and emotional intelligence, I would add self-regulation and self-appraisal to this list because the more experienced, mature and high ranking we become, we receive less feedback and thus we must learn to self-regulate and self-appraise.

These qualities are what, I believe, young officers must display, look for and nurture in Afghanistan, setting the example for our Afghan partners; and Moyar agrees.

If we want to change how things 'are' done, our young officers need to bring about a change of culture. In a leader-centric approach, leaders like you, and those who will follow you, can transform how things 'are' done, through demonstrated leadership, to how things 'should' be done. Having been a mentor to the Afghanistan National Army chief of staff, I know mentorship can be a powerful enabler. Given the magnitude of the challenge, a leader-centric approach must be embraced by all of us if we are to meaningfully transform the governance culture in Afghanistan.

Our officers need to talk to their young Afghani counterparts about leadership, be seen leading in the right way, work to advance those who demonstrate these qualities, and help Afghanistan change their culture through mentoring and leadership development. Through a leader-centric approach, as Moyar would agree, we transform how things 'are' done to how things

'should' be done. We do this through leadership and mentoring, establishing a culture enabling the Afghans to win the peace.

None of the three approaches we discussed is likely to be enough in Afghanistan, or elsewhere for that matter, because each approach targets a different group of people. The first, targets the 'bad guys' and adopting the 'kill or be killed mindset,' eliminating them using the enemy-centric approach. The enemy may well be succeeded by others, but the recruitment and acclimatization process for new leaders can hardly be seamless. We need to keep them off balance. The elimination of Usama Bin Laden, in Pakistan, and Anwar Al-Awaki, in Yemen, clearly demonstrates the need for an enemy-centric approach, to deal with the irreconcilables.

Second, deals with the ordinary citizen, the great mass of people wanting to live normal, peaceful lives. We seek to help this group through various forms of material and moral assistance, which we wrap up under the people-centric approach. They are, however, vulnerable to group one, the pathological killers, who need only to kill a few 'ordinary' Afghans keeping the rest of the population paralyzed. Therefore, we need to work at retaining the hearts and minds of the Afghan people, by a population-centric approach and in parallel by eliminating the killers via an enemy-centric approach.

The Afghan mass is vulnerable as well to their own leaders, both chosen and imposed. There are also limits to the patience of the people for leadership corruption or other abuse. Therefore, the leaders are a third group we must address. This is the group Moyar suggests we focus on and we address them via a leader-centric approach-- using leadership to change culture. Leading and setting an example enabling Afghan leaders to be effective in winning the peace.

Failure to address any one of these groups--that is, not utilize all three approaches (enemy-, people-,

and leader-centric) leaves a broad opening for enemy exploitation.

To date, our experts have debated what to do, in Afghanistan, in terms of counterterrorism versus counterinsurgency (enemy-centric), searching and destroying the enemy, like the Taliban, versus nation-building, directed at the common people (people-centric). Rather than choosing one over the other, we need to incorporate both.

However, as articulated by Moyar, the missing link is the Afghanistan's leadership, the inclusion of a leader-centric approach using our leadership to change the culture of current and future Afghan leaders.

Enemy-centric is about the Army, people-centric about the people and leader-centric is about improving leaders and in turn the government. Army, people and government is a familiar relationship, which Clausewitz would argue, should be in balance. His trinity, explained through the analogy of a small metal ball suspended between three magnets, helps. The magnets are the Army, the people and the government; all three are needed to win.

In Afghanistan, we have invested heavily in the Army and the people. What, in my view and shared by Moyar, has been missing is a robust leader-centric approach transforming the governance culture. As with young captains, leadership and mentoring Afghans is critical to enabling them to win the War on Terror.

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Professor Robert Sharp is from the Near East South Asia Center for Strategic Studies and delivered the quarterly Fires Center of Excellence Cultural Awareness Seminar Sept. 23, 2011, to Basic Officer Leader Course (BOLC-B) and the Captain Career Course (CCC) attendees as a part of their advanced leader curriculum. Sharp is an associate professor and a retired British army officer, who served as the chief of staff of the U.S. Office of Military Cooperation-Afghanistan (OMC- A,) and as mentor to the current Minister of Interior, GEN. Bismullah Khan.

# Afghan Local Police and Village Stability Operations

By CPT Hunter R. Wakeland and 1SG David A. Noel

**C**ounterinsurgency (COIN), a mission most encounter when deploying in support of Operation Enduring Freedom, requires the modern warfighter to adapt to an extremely dynamic battlefield. The fight is often unconventional, and therefore may be inconsistent with military occupation specialty training, the core focus of most units while in a garrison environment. The modern-day field artillery unit frequently finds itself in this situation when deployed to an area of operations that does not require heavy artillery support. Pre-deployment training becomes focused on infantry-style tactics with gun and fire direction sections broken down and reorganized to form maneuver platoons. Naturally, there are inherent obstacles to overcome, especially as these *Redleg* “infantry” platoons assume different and more complex missions while in theater.



SPC Eric Compton, Alpha Battery, 4th Battalion, 42nd Field Artillery Regiment, leads Pusht Rud district local police members through an improvised explosive device (IED) training lane. (Photo courtesy 4th BN, 42nd FA)

Alpha Battery, 4th Battalion, 42nd Field Artillery Regiment, *Straight Arrows*, deployed to Farah province, Afghanistan as part of Task Force Arrow in July 2010, in support of Operation Enduring Freedom 10-11. Having left M109A6 Paladins at Fort Carson, Colo., the battery deployed to the district of Pusht Rud and its respective district center, the focal point of the area’s local governance and security. With four maneuver platoons at the battery commander’s disposal, the unit embarked on a COIN campaign, designed to expand upon the security gains the previous unit achieved. All of the platoons in the area worked closely with Afghan National Security Forces (ANSF), specifically Afghan local police (ALP), Afghan National Army (ANA) and Afghan national police (ANP) members, to achieve certain objectives. Alpha Battery carried this out through both an enhancement of the ANSNF tactical and technical capabilities and partnered disruption operations in areas of the district with historic insurgent influence.

In August of 2010, Marine special operations forces (MARSOF), land owners in the village of Masaw, Pusht Rud district, initiated a discussion with Task Force (TF) Arrow concerning conventional support for assuming control of their mission, known as ‘village stability operations’ or VSO. An enhanced version of COIN, VSO takes a unit beyond the concept of ‘clear - hold - build’ towards expansion and transition of control of an area’s safety and well-being to the Government of the Islamic Republic of Afghanistan (GIROA). VSO is essentially broken down into three lines of efforts, or pillars, on which the mission stands: security, economic development and governance. The key difference between standard COIN operations and VSO is it is

a much more in-depth and extensive process affording coalition forces additional tools and support systems to empower Afghanistan's communities, becoming more self-reliant; capable of protecting their own people, maintaining infrastructure and participating in the local government processes. A unit lives and works closely with locals at a VSO site, village stability platform, and it is at this small base that U. S. forces train the Afghanistan local police force; the cornerstone for any VSO mission.

In keeping with the three pillars of VSO, the establishment of security becomes the priority in a given area of operations before a unit is able to expand its focus to the improvement and empowerment of infrastructural development or local governance. This is the case because insurgents, specifically the Taliban, understandably see the influence of International Security Assistance Force (ISAF) and GIRoA as a threat to their interests in the country and will often times target both people supportive of the Taliban's (TB) opposition and coalition forces or GIRoA facilitated development projects. The ALP program becomes the first line of defense in many cases. They succeed in two significant areas where other ANSF traditionally fall short. First, the ability to recruit, train and maintain a security force allows for their emplacement in even the most remote villages, areas that the Taliban often attempt to influence because of the soft nature of the target. The ALP help to fill these gaps since the ANSF, limited by their numbers and resources, are unable to be everywhere all the time. Second, these police are recruited locally and trained to patrol their respective villages, therefore having a more vested interest in matters of security because of the connection they have to the land and the people who occupy their specific areas of responsibility.

We fell in on a fairly well-established situation in Masaw. The local police force in the village was large, beginning to receive more support from the Ministry of Interior (MoI) and had a newly appointed commander and chain-of-command that had demonstrated measures of effectiveness. Furthermore, numerous development initiatives were already in place and the Masaw Shura, or local governance, was united and influential. Due to the strength of these various areas of societal concern, our focus became centered on improving the capabilities of the ALP and enhancing their connection to the MoI within their newly established ALP support system. The baseline of standing up any security force is training and this is where we invested most of our time during the course of our six-month long mission.

When talk began of this transition from special operation's control to a conventional unit battle space owner, many of the leadership in the special operations community were not confident conventional forces possessed the training, capabilities or support to manage a VSO mission. Prior to this proposal, special operations forces controlled all VSO sites across Afghanistan and the fact they were operating in uncharted waters, combined with the strategic-level importance of the mission, made

many nervous that such an experiment would fail. These hesitations existed on the conventional side as well, however, for very different reasons.

As one can imagine, our unit faced many significant challenges. At the end of our six-month VSO experience, we had essentially compiled a useful set of lessons learned and suggestions that I will discuss in the following paragraphs. These address not only the particular problems we faced with standing up a conventional force, transitioning with the outgoing unit, training of the Afghanistan local police and close interaction with Afghanistan locals, but also the solutions we developed that we feel will serve any conventional unit assigned to a similar mission.

**A battery within a battery.** In November 2010, TF Arrow began developing a plan to resource forces from Alpha Battery. After an extensive period of mission analysis, TF Arrow leadership determined the conventional assumption of a VSO/ALP demanded a well supported detachment element would assume control from the special operations team conducting VSO/ALP. The first phase began in early December 2010, with the arrival of our leadership. The leadership included the battery executive officer, a master sergeant and the platoon leader and platoon sergeant. The leadership requirements for the VSO/ALP impacted battalion and battery level operations capabilities and was also outside and above normal modified table of organization and equipment requirements; however, the two-tier command structure facilitated an effective fulfillment of VSO mission requirements and mirrored, in many ways, the composition of a special operations team. The executive officer and the master sergeant were responsible for the overall command and control of the platoon and for facilitating security, governance and development. These two individuals inherited the duties of the special operations forces command team, made up of the senior officer, or team leader, and senior non-commissioned officer. The platoon leader and platoon sergeant carried out the command team's intent through ALP training and patrolling, which served as the vehicle for connecting the three pillars of VSO. Their duties, and those of their platoon, were very similar to those of the smaller maneuver elements inherent in special operation forces teams. The battalion provided additional attachments; including mechanics, combat medics, and cooks, in order to enable the platoon to retain freedom of maneuver from other administrative and logistical support requirements. These personnel alleviated troop-to-task constraints unique to this mission and allowed the maneuver platoon to maintain focus on operations with the battalion being the support bill payer.

A unit assuming a VSO/ALP should utilize additional leadership with TF Arrow's structure composed of a captain, master sergeant, platoon leader, and platoon sergeant at a minimum. TF Arrow assigned 32 total personnel to support the task; however, a minimum platoon size should be 28 personnel. In an ideal situation,



Afghan and coalition partners sit down to a celebratory meal following the first payday for the Pusht Rud district local police managed by the Afghanistan government's Ministry of the Interior. (Photo courtesy 4th BN, 42nd FA)

TF Arrow would have had time to submit a request for forces to higher headquarters prior to deployment should the formation have a requirement to conduct or sustain VSO/ALP tasks in the future. This would help to avoid a situation where a task force, and its respective companies/batteries, would be spread too thin.

**The right people with the right mindset.** TF Arrow battalion and battery leadership conducted multiple reviews of leadership and platoon 'personalities' prior to determining who would serve in leadership positions and have the greatest potential for success. There were many considerations factored into the choice of platoon and command team. The dynamic VSO operating environment called for a creative and in-depth approach to standard infantry-style operations and required the leadership to generate buy-in down to the lowest level of the unit. Furthermore, our support personnel had to possess sufficient maturity and professionalism with great flexibility for operating in complex situations. Additionally, all Soldiers required the mental capacity to operate in a fluid environment while accomplishing the mission along multiple lines of effort. Failure to ensure that Soldiers were capable, and more importantly understood the mission, would have led to ineffective VSO/ALP members, jeopardized the lives of Soldiers and local nationals and created a residual negative experience that the supported tribe and/or village may never have overcome.

The selection of the right leadership was vital to ensuring familiarization of the lower enlisted with mission intent, village dynamics and local Afghanistan personalities. TF Arrow found the best leader does not always guarantee the greatest success as much as the right attitude and aptitude. Another concern was some

leaders and Soldiers who excelled in a predominantly kinetic environment might struggle or never 'cross the bridge' in the transition toward a greater non-kinetic mission set. Careful analysis and selection of individuals were crucial for battalion and battery leadership.

Once the battalion assigned all Soldiers, our command team determined the selection of Soldiers to work in the VSO environment should not be ranked based, which is a divergence from standard operating procedure in many units. For example, some younger Soldiers might display a greater aptitude and inclination for the mission than their immediate supervisors. One must conduct careful observation with due diligence to ensure that the subordinate Soldier does not perceive any negative repercussion, a negative perception or a negative environment if he is outperforming a senior.

Unfortunately, TF Arrow undertook the task while in country and ideally we would have known about this task prior to arrival in theater. In that case we would have established and trained a team with special operations forces (SOF) and validated the team at a combat training center prior to deployment. The right personality, in conjunction with the correct structured leadership, will be a key enabler in the facilitation of the success of a unit in this critical mission/task. Leaders should be open minded, identify those Soldiers whose disposition/ aptitude is creative and flexible early on and shape those Soldiers for a potential mission such as VSO.

**Extended and in-depth relief-in-place.** MARSOF and TF Arrow determined a deliberate and flexible transition was critical to successful conventional force assumption of the VSO/ALP. Respective SOF and TF Arrow leadership proposed a one-month relief in place / transfer of authority process to effectively transition

the mission requirements. The increase in time spent with SOF counterparts ensured both the comfort of the SOF element with the conventional-force knowledge and capabilities and the comfort of the conventional element with the challenging and complex dynamic of VSO/ALP. A two-week period for only leadership was extremely critical to a successful transition. The two weeks with MARSOF and their leadership enabled us to focus solely on full comprehension of operations and the operational environment as well as freeing them from their normal duties and administrative requirements. The two weeks of leadership-only training enabled us to have a solid foundation of the basics of VSO prior to the main body's arrival. The main body had an additional two week relief in place (RIP), during which the leadership gained and developed better command of the unique operating environment/climate and planned the way forward while the Soldiers increased their own understanding and gained confidence in their ability to execute the assigned mission.

Based on our experience, we feel a proper RIP/transfer of authority (TOA) between a SOF and conventional force should be at minimum one month with the capability to extend the RIP/TOA to six weeks. The RIP/TOA should retain flexibility based on training and skill sets of the conventional forces and their capacity to grasp and master basic skill sets required for assuming responsibility of the VSO/ALP program. This flexibility also accounts for the SOF element to assess the conventional unit capabilities to execute and support the mission. If they perceive significant issues, they can address those issues as early in the process as possible.

**I**mportance of continuous ALP training. The previous unit in control of Village Stability Platform (VSP) Masaw had devoted much of their time on training, reviewing a basic training program with the ALP, which consisted of a red, amber and green cycle. In general, the red cycle seeks to introduce new recruits to program and includes basic marksmanship with their MoI issued AK-47 rifle in addition to patrolling, first aid and operational security. The amber cycle expands upon the red cycle and introduces advanced marksmanship concepts and squad level movements. The green cycle essentially marks both their graduation from the basic program and their official qualification to conduct full scale ALP operations in protection of their respective village. The dilemma we encountered is that once an ALP member entered the green cycle, there wasn't anything in place to sustain their skills, which as in any military unit have a tendency to degrade over time. This became readily apparent when the Taliban attacked the ALP numerous times due to failures in their own tactics, techniques and procedures (TTPs); their most blatant fault being their tendency to set patterns during their patrolling. We found two ways to effectively combat this degradation in skills.

First, our maneuver element embarked on extended and embedded patrols with ALP in their respective village, which usually lasted upwards of 72 hours. The

focus of these extended missions became reinforcing basic skills in sector and mentoring them in their security operations, specifically the planning and execution of their patrols and defensive checkpoint operations. Second, the leadership tasked staff sergeant our ALP non-commissioned officer in charge, to develop a sustainment and enhancement training program within commander's intent that would bring each ALP group back into the training environment at the VSP and review concepts they had not seen since their basic program. The training looked to not only reinforce the fundamentals but teach them new concepts based upon lessons learned during execution of their duties.

Both methods pay dividends in the long term. We witnessed errors in their security when working directly with the ALP in their area of operations and were able to show them how to effectively emplace personnel along key avenues of approach and in observation post locations that afforded them the best line of sight and cover. This is especially critical during night operations as the Taliban often utilized periods of darkness in order to avoid detection. In terms of actual instructional training, a program was developed that emphasized areas where we found weakness in the ALP's tactics. As mentioned before, their tendency to set patterns during patrolling and checkpoint operations was the most severe fault, which made them an easy target for ambush or improvised explosive device attack. We focused our training on correcting these issues and incorporated IED lanes to reinforce IED detection and avoidance. Furthermore, we frequently met in a classroom environment to talk through how the Taliban will exploit the ALP's behavior in order to target them in the most advantageous manner.

We experienced the fruits of our labor when the same ALP we trained were able to successfully defend their village in the face of Taliban aggression, improve their patrol techniques, tactics and procedures and locate IEDs the Taliban emplaced to directly target the ALP and other key Masaw leadership. However, recruiting continues even as the existing force improves and the training schedule must be managed to allow for both enhanced training for qualified ALP members and basic training for new recruits as they join the program. Despite instances of success we encountered, not all the ALP absorbed and implemented training right away and we had various discipline issues distracting from the advancement of the program.

**S**tandards and discipline within the force. The benefits of training were not always immediately seen and we encountered significant friction when implementing new concepts and techniques. As one could imagine, the receipt of a weapon and a regular paycheck, not the security of their people and country, motivates many of the ALP to join the program. The existence of this self-serving attitude in the program sometimes lead to problems with attendance and general lack of interest and discipline when they actually did participate. This poor

performance sometimes extended to their operations within their respective village as well and we had many instances where ALP behaved in a way inconsistent with the fundamentals of the program or used their position in the force for personal gain. The majority of the issues stemmed from members conducting offensive operations or taking their weapons outside their village for any number of reasons. Furthermore, we had an instance where ALP members utilized their position to solicit additional money in exchange for the villagers' security.

In all cases, we found it is important to fall back on the appointed Afghanistan leadership for an 'Afghanistan solution'. We constantly looked to the ALP leadership to fix problems, to hold their ALP accountable for their actions and maintain discipline within the force; however, we often encountered difficulties with leaders as well. This was most often the case when the district ALP commander sought to suspend or fire an ALP member for a particular infraction of ALP regulations or for acting in a way inconsistent with the oath they swore when joining the program. It becomes a matter of pride, especially in a male-dominated society, when a person is temporarily or permanently removed from their job and asked to turn in their weapon. Shura leadership and village members will lobby in support of the member in question no matter how severe the violation. In any case, after we let some initial infractions slide in the interest of maintaining relationships within the village, we found that the benefits of pressuring the leadership to hold their patrolmen accountable far outweighed any resulting negative repercussion. It not only sends a clear

message regarding expectations of ALP behavior but also affirms the power and influence of the ALP leader and asserts his control, which we were constantly trying to manage.

**Mentoring and empowering ALP leadership.** ALP patrolmen at the village level operated under their respective ALP leader, and these leaders in turn, took their orders from the district ALP commander. Each leader, at both the district and sub-village level, also possessed an executive officer to handle administrative issues and command in the absence of the commander. Therefore, because of the influence these leaders maintained with their people, we found it necessary to allocate additional time and attention to empower ALP leaders and improve their abilities. As a group, regular weekly meetings facilitated this focused attention with coalition forces (CF) key leaders, the district ALP commander and sub-village leadership all in one formal setting. When CF leadership first initiated these weekly engagements, we were also primarily responsible for developing and controlling the agenda. We conducted the first few meetings in an after action review format, addressing lessons learned, both positive and negative, from the previous week's operations and also discussing issues currently affecting the force. We quickly found that these meetings turned into gripe and complaint sessions about CF and the MoI, which most of time concerned a lack of equipment and supplies. Our immediate reaction was to look at the district ALP commander to control the exchange. It took a few ALP leaders' meetings and a significant amount of one-on-one mentoring with

The Pusht Rud district local police commander addresses a group of potential local police recruits during a combined dismounted patrol with soldiers from the Afghan National Army and Alpha Battery, 4th Battalion, 42nd Field Artillery Regiment. (Photo courtesy 4th BN, 42nd FA)



the district ALP commander for this to take effect but his increased assertiveness, combined with our vocal support for his position, lead to more streamlined and effective meetings that he actually planned and executed.

Leadership instruction also occurred outside of a sit-down engagement, as we sought to improve leadership abilities during training events and combined patrolling. We forced all ALP leaders to assert themselves in their roles and take control of their patrolmen, which gave a sense of ownership and put them in a position where they had to exercise their duties. This also helped to improve their comfort in their assigned position. For instance, during patrol formation training or react-to-contact drills, we placed the leader in charge of positioning his men and managing their reaction during simulated enemy contact.

In any case, it became clear to us early on that effective leadership makes or breaks a program and therefore requires constant attention, whether at the VSP in meetings and conducting training or while in their village conducting security operations. Patience is critical because mentoring Afghanistan males is a deliberate process. For example, our CF leadership engaged in daily, key leader engagements lasting upwards of three hours and issues often required many meetings, over a period of several days, to resolve. One will find the need to constantly defer to the district ALP commander in order to resolve issues and advance the program. Depending on his effectiveness, he will be able to unify the village leaders in the group, as will the village leaders with their respective patrolmen.

**Management of Shura influence.** When establishing an ALP site, it is necessary to approach the local Shura (local governing body) and its leadership to garner support for the program. Furthermore, because these community leaders already exert influence within their village, they make ideal candidates for appointment as village ALP commanders. When we took over the mission from the previous MARSO unit, we found that this was the case with many of the commanders and it made our facilitation of the three pillars of VSO that much easier, as we were able to address matters of security, development and governance all with one point of contact. Despite these advantages, there were also times where it became a problem and hindered progress.

First, as discussed earlier, an ALP member's status as a civilian leader, combined with pressure from local villagers loyal to ALP members who've committed transgressions, affected the willingness of ALP leaders to hold their patrolmen accountable. This is obviously not the type of discipline system that corrects behavior, nor does it send a clear message to others in the program. In our minds it is only appropriate in a military environment, but Afghanistan culture is often blind to these sorts of issues.

Second, village leadership approached us early on in the mission regarding admitting an influential village and district Shura leader to an ALP patrolman position.

We thought that it would be beneficial to have him in the program because of his influence and we agreed to train and equip him. Problems arose quickly in his village due to the fact that we placed him under an ALP leader with less importance in the community with the expectation that he would follow orders, execute patrols and checkpoints. This obviously did not happen and we soon realized that the Shura leader wanted to join the program simply for the weapon to provide for his personal security. When he also started showing up to ALP leaders' meetings and meetings with the district ALP commander, we drew the line and outlined his role in the most respectful way possible. When his brother, also a district Shura member, tried to gain admission to the program for similar reasons, we refused citing the purpose for the ALP program as a defensive measure for the village and not as an arms issuing program for Shura leaders.

We learned our lesson that the involvement of these government-minded individuals is not always beneficial to the mission and must be closely watched. Furthermore, interaction with powerful members of a village in a VSO environment requires a sensitive approach. As discussed, allowing Shura leader appointment to an ALP leader role is usually a good decision since they already carry weight in the village; however, in cases that require denial of admittance, one must be prepared to incite uproar and deal with heated discussion. We found the best approach is to be firm and remind village leadership of the spirit of the ALP and the reasons they allowed it in their village in the first place. Shura leaders will lobby for their fellow leaders in these instances, but it is our opinion that it is more out of courtesy and respect and they ultimately understand the conflict of interest.

**It's all about relationships.** Building relationships, both working and inter-personnel, is the overarching key to success in the VSO environment, especially in the associated ALP program. As most Operation Enduring Freedom veterans can attest, Afghanistan culture dictates a very slow and deliberate method of engagement and parties will discuss business only after the development of trust. Over time, this trust will facilitate a relationship and discussions will improve in efficiency and lead to better overall partnership. Although, one must not only build a relationship but maintain it as well, since the potential for feelings of distrust is high in a wartime environment. We utilized various methods to accomplish this when dealing with the ALP and the various Masaw leadership that influenced the program.

First and foremost, the mentorship associated with training the ALP allows for the establishment of common ground. We frequently embarked upon extended combined missions (2-3 days in length) with village ALP forces that allowed our maneuver element to live, work, eat and sleep with local Afghanistans in their respective area of operations. The support we showed for their training, their village security and the mutually shared experience strengthened the bonds of brotherhood



between the two nations. At the VSP, leadership called upon young 13 series privates and specialists to utilize interpreters to convey training concepts to large groups of local Afghanistans with loaded weapons. This would be an intimidating proposition for most young Soldiers; however, the Afghanistans recognized the commitment of CF to their training and this facilitated the development of trust and respect amongst both parties.

Second, after two deadly insurgent attacks against the ALP that strained relations between CF and the people of Masaw, we held memorial services for the fallen ALP out of respect and to honor their sacrifice and that of their families. Not only did this assist in the grieving process and allow the village to move on but it also demonstrated CF support for the ALP and their families, especially when coupled with a condolence payment to the next-of-kin.

Finally, we conducted ceremonies for the ALP to mark significant milestones in the program. For instance, we organized a celebratory dinner following the first MoI-sanctioned payday of ALP in recognition of another step towards autonomy. We also held a ceremony for distribution of their official MoI-issued ALP uniforms, which we worked to include district and provincial Afghanistan representation. In this way, we were able to not only strengthen our own relationship with the ALP but also their connection to their own government.

Wherever one chooses to focus their attention, whether it be on patrol with ALP, during training, or in meetings with leadership, be prepared for frequent engagement of the local Afghanistan populace on a daily and nightly basis. There's a critical need to maintain patience since all Afghanistans operate on 'Afghan time.' We made sure that everyone in the chain-of-command, down to the lowest enlisted Soldier, understood the basic concepts of the mission, Afghanistan culture and our intent because there came times where we called upon them to interact with Afghanistan locals, especially during ALP training. They understood that their actions and words could have far reaching effects and they did their best to respect the fact that the Afghanistans were taking a significant risk. Above all, when we left Masaw, we left our Afghanistan partners as friends and friendship is always a solid foundation for strong working relationships.

**Conventional force ability in VSO mission.** The ever changing nature of the COIN environment will require conventional field artillery units to undertake dynamic mission-sets testing the adaptability of officers and Soldiers alike. These missions often involve a break from standard indirect fire skills and will present certain challenges that will require creativity and critical thinking to overcome. VSO falls into this category and the above mentioned problem sets describe just a small portion of our lessons learned over the course of six months. They are by no means representative of the comprehensive nature of VSO and any unit involved with this mission must remain flexible, patient and creative in their problem solving. Because the mission is broad and



Leadership from local security forces and Masaw village gather to honor local police members lost in the line of duty. Coalition forces often organized events with village leadership to strengthen relationships between the village of Masaw and district and provincial Afghanistan government officials. (Photo courtesy 4th BN, 42nd FA)

requires a varied skill-set to be successful, some might think that missions such as these should be assigned solely to special operations units that are presumably more capable of operating in an ever changing wartime environment. Based on our experience, a conventional unit, field artillery or otherwise, given the proper resources and personnel, will exceed expectations when engaging in a mission of this magnitude and complexity.

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# *A Current Assessment of Excalibur Employment in Afghanistan*

By COL Gene Meredith, MAJ David Moser, CPT Andrew Zikowitz and Mr. Daniel Hallagin

**I**n November 2011, I had the opportunity to lead a four-man assessment team from the Fires Center of Excellence, Fort Sill, Okla., exploring the operational employment of the 155 mm Excalibur and other precision munitions in Afghanistan. One of our objectives was to determine why U.S. Army forces were employing a limited number of Excalibur projectiles in Afghanistan. As we conducted our survey, we quickly realized there were multiple reasons for the limited number of Excalibur projectiles being fired and this was a symptom of a much larger issue with indirect Fires (IDF) as a whole.

Soldiers from Charlie Battery, 1st Battalion, 321st Field Artillery Regiment fire their M777A2 at Forward Operating Base Bostik, Afghanistan. (Photo courtesy of 1st BN, 321st FA)

We organized these reasons into seven focus areas:

1. Combined Joint Task Force (CJTF)/Regional Command (RC) Fire Support Element (FSE) Capability
2. Combined Arms Excalibur Live Fire Training
3. Fire Support Team (FIST) Collective Training
4. Employment, Institutional and FA Schools Training
5. Close Air Support (CAS) Employment
6. Firing Unit Capabilities
7. Airspace Management

Although Excalibur usage can and should be increased due to its accuracy, we also recognize this munition, like all others, has its strengths and weaknesses. Excalibur is neither the field artillery's nor the maneuver commander's precision weapon panacea; rather it is one of a select group of precision or near-precision munitions available. Therefore, the focus areas we identified are not necessarily exclusively specific to Excalibur employment but can be applied to most IDF.

**Field artillery organization for combat.** To discuss the current Excalibur employment, it is necessary to understand how U. S. Army Field Artillery is employed and organized for combat in Afghanistan. The majority of deployed firing units are organized in the same way; employing two gun platoons of M777A2s, M198s, or M119s. Regional Command (RC)-East consists of eight brigades, of which five resemble standard U.S Army brigade combat teams (BCTs), and of these five BCTs, only four have deployed their organic Fires battalions. RC-South consists of five brigades, of which three resemble standard U.S. Army BCT. RC-South has only one Fires battalion that provides IDF for the entire RC. Due to the size of the battle space in both RC East and RC South, there are not enough Fires battalions to ensure field artillery coverage for all maneuver forces, much less coverage by a weapon system that can deliver Excalibur.

**The CJTF/RC fire support element (FSE) capability.** One of the most detrimental aspects to surface-to-surface IDF employment and FSE capability has been the loss of the division artillery (DIVARTY) and or the lack of a deployed Force Field Artillery (FFA) Headquarters. There is no O6-level (Colonel) command authority at the CJTF/DIV level to enforce standardization and certification, share indirect Fires tactics, techniques, and procedures, much less advocate for Excalibur or other surface-to-surface IDF. Although the division increased the FSEs personnel authorized strength to offset the loss of DIVARTY, it was not sufficient to allow them to perform the same functions as the 150-personnel DIVARTY staff or FFA Headquarters. Couple this with some of the division FSEs personnel shortages and it is easy to see why there has been a degradation of surface-to-surface IDF employment, as a whole, with the second order effect of limited precision munitions employment. Without a deployed FFA HQ, Fires battalions assigned to BCTs are forced to accept additional responsibilities that would otherwise be considered the duties of the FFA HQ. The lack of FFA HQ and diminished capability of the DIV/CJTF FSEs places the onus of Excalibur employment on Fires battalion commanders and junior fire support personnel.

To better influence the IDF fight, a Fires brigade or a FiB HQs, at a minimum, should deploy with each division headquarters to provide FFA functions and Fires experience and expertise for the CJTF. If that is not possible, a post brigade commander with a staff designed to execute FFA functions should deploy with the CJTF. CJTF/Division fire support coordinators (FSCOORDs) and FSEs should be manned at authorized modified table of organization & equipment (MTO&E) levels with the commensurate level of expertise required to perform their mission.

**Combined arms Excalibur live-fire training.** Combined arms Excalibur live-fire training, at home

station, and/or at the Army's combat training centers (CTCs), is inadequate for units preparing to deploy. In many cases, Excalibur capabilities are misunderstood by maneuver commanders and fire support teams alike. The first time many units live-fire an Excalibur round is in Afghanistan. This is primarily due to the fact they cannot fire Excalibur at home station and/or during their pre-deployment training at the Joint Readiness Training Center (JRTC), Fort Polk, La. Units with pre-deployment training opportunities at The National Training Center (NTC), Fort Irwin, Calif., do not fare much better since they are limited to only one live-fire round if it functions properly. Additionally, the CTC training is often focused on the target packet and concept of the operations (CONOP) process, opposed to the conditions they will face in Afghanistan. CTC Excalibur training does not offer experience in solving problem sets that deployed units encounter, such as airspace coordination, tactical employment, collateral damage estimate (CDE) concerns, ballistic impact-point (BIP) consideration, target location, and the mensuration of 10-digit grids. Due to this limited exposure and incomplete training, units do not understand Excalibur employment tactics, techniques, and procedures (TTPs). In addition to this situation at the CTCs, when units deploy to Afghanistan, Excalibur live-fire training is not conducted frequently. Not unlike the missions fired at the CTCs, rounds fired down range seem to degrade some maneuver commanders and fire supporter's opinions of Excalibur, rather than gain their confidence. In the relatively small sampling of training rounds fired in Afghanistan, any resulting 'fail-to-function' or 'precise miss' skews the perception of the munition's actual dependability.

To facilitate better understanding among fire support personnel and maneuver commanders alike, the Excalibur round must be fired during home station, live-fire training. The Excalibur project manager

needs to support this requirement by immediately implementing a technical solution to reduce the size of the surface danger zone. CTC Excalibur training should be scenario driven, to include procedures and battle drills required to accurately locate the target, clear airspace, synchronization and cross talk between fire support officers (FSOs) and fire direction centers (FDCs) to produce a BIP plan integrated with pre-planned airspace coordination measures (ACM). Units should shoot Excalibur early and often during their rotation, demonstrating to maneuver commanders Excalibur's effectiveness, as well as training the entire fire support team.

### **Fire support team (FIST) collective training / employment.**

Collective FIST training is currently not adequate to support more frequent use of Excalibur. As a consequence of modularity, many FIST teams do not conduct pre-deployment training with the Fires units they will serve with in Afghanistan. Fire support teams further decrease their ability to employ surface-to-surface IDF by training for nonstandard missions at the expense of their core competencies. Acknowledging this is not a new concern; the impact is even more apparent when trying to employ a complex munition, such as Excalibur. Precision capability was further degraded when units did not train using the required digital equipment accurately employing precision munitions. Additionally, FIST do not often carry the required equipment to obtain the 10-digit grid required for precision Fires because they are carrying additional equipment necessary and required by their patrolling units.

Commanders are increasingly relying on intelligence, surveillance, and reconnaissance (ISR) assets to provide observation for Fires. Assets that provide real-time or near real-time feeds to tactical operations

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Soldiers from Bravo Battery, 1st Battalion, 321st Field Artillery Regiment take part in a fire mission at Camp Clark, Afghanistan. (Photo courtesy of 1st BN, 321st FA)





Charlie Battery, 1st Battalion, 321st Field Artillery Regiment fire their M777A2 while deployed to Forward Operating Base Blessing, Afghanistan. (Photo courtesy of 1st BN, 321st FA)

center are preferred over dismounted observers due to their ability to aid in CDE decisions. Providing target grids, which can be mensurated with Precision Strike Suite for special operations forces (PSS-SOF), with ISR assets designed for force protection is an effective practice. However, it removes the ground-based observer from the situation and further erodes the maneuver commander's confidence in the observer to do his job.

Continuing support for the current Force Design Update (FDU), which aligns FIST training and oversight with the Fires battalion commander, will correct a great deal of the noted training inadequacies. The Fires Center of Excellence (FCoE) needs to promote the importance of the fire supporter's priorities through continued discussion with the Maneuver Center of Excellence (MCoE). The FCoE needs to refocus FA junior officer development

on fire support tasks to produce surface-to-surface Fires experts. Most importantly, FIST personnel at all levels need to be proponents for fire support expertise by training and certifying their subordinates in their primary mission of the employment of all IDF.

**Institutional training.** Many of the senior leaders in Afghanistan are concerned junior officers and senior fire support NCOs do not graduate from the U. S. Army Field Artillery School at Fort Sill, Okla., with a thorough understanding of Excalibur TTPs. They are also concerned that these Soldiers and officers have no experience on digital systems required for precision Fires. As a result, units deliver pre-deployment Excalibur training to Fires battalion key leadership and generally fail to include maneuver leaders and fire supporters. The result is a failure to adequately educate commanders on the training requirements for

enabling and sustaining the capability to exploit Excalibur's precision.

We recognize recent updates to 13F (forward observer) Senior Leader Course, Artillery Basic Officer Leadership Course (BOLC), and FA Captain's Career Course (CCC), which are significant and appropriate; but graduates of these new programs of instruction (POI) have yet to reach the deploying force. To improve precision munitions understanding, FA officers need access to material previously taught in the Excalibur New Equipment Fielding Team. Additionally, junior FA officers need exposure to material, such as airspace coordination, collateral damage estimates, and technical precision strike suite for special operations forces (PSS-SOF) instruction, currently taught in 13F Senior Leaders Course and Targeting Warrant Officer School. Some required updates can be incorporated into the existing POI. For example, in depth

BIP management can be added to the gunnery portion of training of BOLC and FACCC.

We consider the introduction of Precision Guided Kit (PGK) as an opportunity to hone the precision skills of artillery leaders. Acquiring 10-digit grid and training target mensuration should be included in the PGK training plan. Training should be carefully developed, to focus on precision Fires planning and coordination, and considerations for tactical employment not just delivery system requirements. FSOs need to know how to doctrinally incorporate Accelerated Precision Mortar Initiative (APMI), Excalibur, and eventually PGK into echeloning precision and near-precision Fires coverage.

**Combined Arms Support (CAS) Employment.** As fire supporters, it is important to realize the influence the unmatched levels of air support and aerial ISR, in this conflict, have had on the combined arms fight. Due to the lack of an air interdiction mission or counter air mission, air support is available to maneuver units in Afghanistan at greater levels than during any other conflict in recent history. These large numbers of CAS missions and air weapons teams (AWT) have been a great asset on the battlefield; however, it has now created an over reliance and demand for CAS and AWT that will most likely not be fulfilled in future conflicts. Air assets are favored for perceived ease and speed. Guidance and restrictions (such as rules of engagements and tactical directives) in theater favor the use of CAS and AWT as 'direct fire systems' over indirect assets. Because a pilot can easily establish visual contact with a target, and the joint Fires observer (JFO) can easily guide the pilot to a target from an eight-digit grid, JFOs perceive air support as more responsive and don't use precision indirect fire systems.

As fire supporters, we must ensure our maneuver counterparts understand the impact of relying on CAS and AWT. The capability to deliver surface-to-surface Fires is their only 24-hour-a-day, all-weather

indirect fire source. Fire supporters must be advocates for all indirect Fires and familiarize maneuver commanders with the capabilities and limitations of these systems. They must be advocates for surface-to-surface Fires; in much the same way as the air liaison officer is for CAS.

**Firing unit capabilities.** Currently, M777A2 firing locations do not cover all maneuver areas of operations (AO) in Afghanistan, thus limiting Excalibur employment. Due to the wide dispersion of firing locations, autonomous platoon operations, and force cap limitations Fires battalions, theater-wide, do not have overlapping, mutually supporting Fires, cannot mass Fires nor provide precision Fires throughout the entire area of operations. Presently, Regional Command (RC)-East artillery employs M777A2s, M198s, and M119s while RC-South employs only M777A2s. RC-East has more indirect Fires capability available; but both AOs have considerable FA coverage gaps. All the Fires battalions responsible for M777A2 and Excalibur coverage have multiple missions, some supporting more than one brigade AO, adding complexity to employing indirect Fires. Several deployed field artillery units' MTO&E howitzers are the M119A2; however, in some cases they operate M777A2 during deployment with very limited pre-deployment training. The limited 155 mm coverage, difficulties with cross-brigade indirect Fires, and lack of institutional understanding of a digitized howitzer exacerbates limitations of Excalibur employment.

The pending composite M777A2/M119 force design update (FDU), when implemented, will have a positive impact on the capability to deliver precision indirect Fires in theater. However, this will take time to realize and there are solutions that can be implemented immediately. Deployed units should employ all operational M777A2s in Afghanistan and replace all existing M198s with M777A2s, expanding available Excalibur delivery. Lethality and accuracy can be improved by utilizing M777A2s for all forward operating

bases (FOBs)-oriented indirect Fires operations, while maintaining M119A2s for missions requiring mobility. To ensure a common understanding of the capabilities and limitations of the M777A2 and Excalibur munition, Fires battalion commanders, supported brigade Fires cell, and combined joint task force (CJTF) fire support coordinators (FSCOORDs) should track precision guided munition (PGM) capability, along with the five requirements for accurate predictive fire. Additionally, PGM capability needs to be reported and visible to the maneuver commander to ensure he understands both the capabilities and limitations of his organic precision weapons systems.

**Airspace management.** Airspace management is often cited as the major reason for the limited use of Excalibur and other IDF's. Many maneuver commanders and fire supporters believe the employment of indirect Fires restricts the use of other systems sharing a given airspace. In some cases, the use of 'hot-walls' or restricted operations zones (ROZ) limit the airspace for AWT, ISR, and CAS. An additional concern is the overall timeliness of effects on target. As Excalibur is always fired high angle, more time is required to clear airspace than a low angle mission. Time of flight also affects the timeliness and associated risks, where time of flight for direct fire systems is significantly shorter. Typical time of flight for an Excalibur mission fired in the theater is between 90 and 120 seconds, based on range. The greater time of flight equates to more opportunity for target movement, or for civilians to enter the battlefield target area.

As surface-to-surface Fires experts, fire supporters need to recognize these legitimate concerns and manage airspace in order to best integrate surface-to-surface indirect Fires into the airspace management framework. Units, successful in Afghanistan, use named hot walls with multiple pre-cleared BIPs maximized to facilitate greatest coverage with the fewest restrictions. The phrase



Bravo Battery, 1st Battalion, 321st Field Artillery Regiment Soldiers complete a fire mission at Forward Operating Base Salerno, Afghanistan. (Photo courtesy of 1st BN, 321st FA)

'hot walls' refers to a non-doctrinal, field expedient restrictive airspace coordination measure, built along the gun-target-line with a predetermined width and altitude encompassing ballistic trajectory for the round and the BIP. BIP planning should be synchronized with the battlespace owner and integrated with airspace coordination measures to support the area of operations. Units preparing to deploy to Afghanistan need to train on 'hot-wall' development and airspace management supporting precision Fires employment. Training should integrate the brigade air element (BAE), task force fire support element, and Fires battalion. Only by working within the current airspace management process and addressing the characteristics of current precision munitions will we be able, as fire supporters, to increase the use of these munitions.

The vast majority of the recommendations, made in this article to increase Excalibur and surface-to-surface IDFs, came directly from units currently fighting with Fires in

Afghanistan. There are many reasons for the limited IDF and Excalibur usage in Afghanistan; however, these seven focus areas: (CJTF/RC Fire Support Element Capability, Combined Arms Excalibur Live Fire Training, FIST Collective Training, Employment, Institutional and FA Schools Training, CAS Employment, Firing Unit Capabilities, and Airspace Management) were the most prominent areas observed by the assessment team. Overall, we found incredible work being done by Fires battalions to develop TTPs and increase the use of Excalibur and IDFs. However, as with many issues concerning the delivery of indirect Fires, it was the fire support side of the equation where the vast majority of the challenges currently exist, in regards to the employment of Excalibur and surface-to-surface indirect Fires. Since the integration of Fires with maneuver has historically been, and continues to be, the most difficult task in the delivery of Fires, this is not surprising. Realizing this, as fire supporters, we must increase

our precision munitions expertise; but, more importantly, we need to once again be advocates for surface-to-surface indirect Fires, including Excalibur. This will ensure we have the fire support expertise and experience required to support the maneuver commander, for the remainder of this conflict and for the next, with all his indirect Fires requirements.

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# The 19th Battlefield Coordination Detachment in Operation Odyssey Dawn: A Combat Multiplier

By COL Steve Maranian and MAJ Nikolaus Guran

**C**oordination between air and ground forces has been a necessity since the airplane was first used in combat a century ago. A student of military history doesn't have to look far to find examples of how synchronization between the services on the modern battlefield saves time, resources, and ultimately lives. For three decades, since first employed during Operation Desert Storm, battlefield coordination detachments (BCDs) have been integral to air/ground synchronization between Army and Air Force headquarters. Despite their important mission and impressive accomplishments, surprisingly few Soldiers can tell you what a BCD is or what it does.

U.S. Air Force Col. Peter F. Davey, commander of the 603rd Air and Space Operations Center presents the Air Force Achievement Medal to 19th BCD Soldiers for their role in Operation Odyssey Dawn. (Photo courtesy of the 19th BCD)



As defined in Joint Publication 1-02, a BCD is a "... liaison element provided by the Army component (or land forces) commander to the air operations center (AOC) and/or to the component designated by the joint force commander (JFC) to plan, coordinate, and de-conflict air operations. The BCD processes requests for tactical air support, monitors and interprets the land battle situation for the Joint AOC, and provides the necessary interface for exchange of current intelligence and operational data." Put another way, when doctrinally employed, a BCD integrates Army forces (ARFOR) or land component requirements into the air tasking order planning and execution processes. It serves as the ARFOR/land component commander's advocate in the AOC and it ensures U.S. Air Force planners and commanders understand the ground common operating picture and the requirements necessary for the land component to accomplish its mission.

But, what if there is no designated land component? How can the joint task force and air component commanders leverage the BCD to optimize its value to the team?

Continued on page 36.

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We don't often think about a joint task force being formed without a land component, yet this is exactly what happened in March 2011, as events in Libya led to the commencement of Operation Odyssey Dawn (OOD). Odyssey Dawn was the name given to the U.S. led, coalition response to enforce United Nations Security Council Resolutions 1970 and 1973 before the transition to Operation Unified Protector under NATO command in early April 2011.

Properly defining command relationships for OOD was critical to the operation's success. Because Libya is geographically located on the African continent, JTF-OD was created under United States Africa Command (AFRICOM). While JTF-OD had tactical control of most forces, a majority of the forces utilized were assigned to United States Army Europe Command (EUCOM) who retained operational control. With both combatant commands' air component's AOCs located at Ramstein Air Base, Germany, the Combined/Joint Forces Air Component Command's (C/JFACC) leadership made an excellent decision early on to merge the 603rd (EUCOM) and 617th (AFRICOM) AOCs. This decision maximized synchronization, facilitated the integration of coalition liaison elements, and allowed the 19th BCD to operate from one consolidated AOC which enabled our success. The organizational decision to forego designating a land component, however, left vital functional gaps for which the agility of the 19th BCD would later play an important role in mitigating.

From the beginning, we realized this operation would require our team to adapt and find innovative solutions to issues arising from the non-traditional construct of the JTF. We immediately recognized the integral role played by both AFRICOM and EUCOM meant the 19th BCD would serve as a conduit of information between the air component command and two Army service component commands (ASCC); both United States Army Europe (USAREUR) and United States Army Africa (USARAF).

Naturally, there were doctrinal functions for which little adaptation was required. We passed information to and from our ASCC headquarters to improve synchronization and situational awareness; we participated in the air tasking order (ATO) planning and execution cycle; we advised the air component on enemy land forces tactics and capabilities; and we assisted them in interpreting the land battle situation. In addition to working with two ASCC headquarters, other gaps we helped to fill during OOD were to assist the Marine Liaison Element (MLE) in their liaison with the 26th Marine Expeditionary Unit (MEU), and coordinating a venue for the synchronization of ground intelligence throughout the joint area of operation. Ultimately during OOD, the 19th BCD was a combat multiplier not only by doing what one would expect of a BCD, but also by filling gaps for the JTF.

**Traditional roles.** The 19th BCD facilitated the sharing of information by communicating regularly with both ASCC headquarters. This ensured both USAREUR and USARAF maintained situational awareness of ongoing



Soldiers of the 19th Battlefield Coordination Detachment pose for a photograph during their support of Operation Odyssey Dawn. (Photo courtesy of the 19th BCD)

actions in the AOC, which in an air-centric operation, was the hub of all information. This process began several days prior to the commencement of combat operations during the planning process. As a rule, we sent these updates twice daily but as the situation dictated, we supplemented them with interim reports and conversations over secure video teleconference. Though succinct, these updates painted a broad picture of operations and intelligence assessments from within the C/JFACC's headquarters. At the request of the JTF deputy commanding general, these updates were also carbon copied to the JTF and other components' leadership, thus improving cross-talk and chatter across the JTF as a whole.

The BCD's plans and intelligence sections were extremely valuable during the ATO planning cycle. The 19th BCD is fortunate to have a seasoned and highly experienced targeting officer, CW4 David Mennor, who brought his experience of serving as a fire supporter at every echelon, from platoon to corps, and six combat deployments. During the JTF's joint targeting coordination board, Mennor made recommendations concerning the interpretation of rules of engagement based on his past experience striking time sensitive targets, which facilitated the C/JFACC's efficiency in striking dynamic targets. His participation in this critical venue served to facilitate a joint perspective and broadened the aperture of board participants' focus. Mennor became a sounding board the AOC's planners utilized to help identify problems and find solutions.

The BCD plans section also provided daily input into the AOC strategy division's air operational directive meetings. Given the nature of the coalition and the myriad multi-national players that attended this meeting, it became a working group. As the only ground component representative in the AOD meetings, we were uniquely qualified to analyze the Air Force's proposed tactical tasks and desired effects. We often provided injects from a ground perspective that would generate discussion. For example, "What do you really mean by saying 'we want to protect the population?'" "What is the best way to conduct targeting without live feed video and/or observers on the ground?" "When is a tank actually

displaying hostile intent (i.e. in an over-watch position vs. sitting idle) and what is the trigger to attack such a target?" We emphasized the need to clearly define tasks in order to achieve objectives that would create the desired effects. Finally, and more significantly, we participated in the AOC's development of information operations themes to nominate to the JTF for consideration. Again, this is another example of how our Soldiers' v past combat experiences in dealing with enemy ground combatants over the past decade of war helped lend a ground perspective to the AOC's targeting process in the absence of a designated land component.

The 19th BCD's intelligence section served as the C/JFACC's expert on enemy ground force tactics. They advised the AOC on the regime order of battle, weapons capabilities, critical nodes, and assisted in developing regime courses of action (most likely and most dangerous). We pulled from our experiences in Operations Enduring and Iraqi Freedom to emphasize the importance of tribal affiliations, how they affected the situation on the ground, and how they might be leveraged.

**Non-traditional roles.** During the planning phase and prior to the commencement of combat operations, it became evident to the JTF and C/JFACC leadership that the BCD possessed excess capacity to contribute to the team in non-traditional ways given that based on the JTF's structure, which lacked a land component command, the BCD was not executing its primary mission, liaising for the ARFOR.

At the direction of the JTF DCG, the BCD performed two non-doctrinal functions which significantly contributed to synchronization of the components during OOD. First, we bolstered the one-man Marine liaison officer (MARLO) to facilitate effective liaison between the AOC and the 26th MEU. As OOD occurred, much of the 26th MEU was disembarked in the Central Command's area of responsibility, and the MEU did not have sufficient manpower to provide a robust MARLO to the AOC. This was an easy fix. Our team facilitated the needed level of crosstalk and coordination between the leadership and staffs of the C/JFACC and MEU. By doing so, the MEU commander was able to focus his staff's energies on the close fight rather than siphoning off resources to augment his MARLO in the AOC. Though the coalition flavor of OOD drove the AOC's use of computers and e-mail for dissemination of digital products, the BCD nevertheless established digital communications with the USS Kearsarge via the Advanced Field Artillery Tactical Data System (AFATDS).

Second, the BCD became the de facto facilitator of ground intelligence throughout the JOA. While our small team was not manned or trained to provide theater level analysis and assessments, we filled a gap by facilitating a daily VTC with all critical stakeholders.

These important synchronization sessions included the information knowledge director's Order of Battle Analysts at JAC Molesworth, ground intelligence analysts from the Intelligence, Surveillance and Reconnaissance

Division of the 603rd AOC, a newly created JTF ground fusion cell aboard the USS Mount Whitney, and the 26th MEU's Intel Section aboard the USS Kearsarge. Without a designated land component, there was no ARFOR G2 available to pull together and synchronize a ground picture. Seeing a need, the JTF DCG engaged the BCD to step in and help to improve ground intelligence cross-talk.

Finally, as discussed earlier, though 19th BCD is a USAREUR asset, due to our location at Ramstein Air Base and the close ties between the 603rd and 617th AOCs, we are clearly the best choice for coordinating air/ground synchronization within AFRICOM's AOR. Should this relationship become formalized in the future, particular care should be made to ensure full manning of the organization's Modified Table of Organization and Equipment to facilitate the BCD's ability to support two combat commands.

So, how can a BCD effectively meet the needs of the JTF and air component when there is no land component? We'd offer that it should start by ensuring it does everything it is supposed to be doing doctrinally, and then use any excess capacity to find non-traditional ways to support the C/JFACC and Joint task force commander. To be an agile and adaptive organization, a BCD must be skilled at its core competencies. Once those become second nature, the contributions a BCD can make are limited only by the imaginations of its leaders and those of their supported and supporting headquarters.

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Colonel Steve Maranian, Field Artillery, commands the 19th Battlefield Coordination Detachment at Ramstein Air Base, Germany. He has served in various command and staff positions in the field artillery including command of 4th Battalion, 319th Airborne Field Artillery Regiment, in both Bamberg, Germany, and for 15 months in northeast Afghanistan. He has also deployed to Iraq as the 1st Infantry Division Artillery executive officer and later as the 1st Infantry Division Deputy ACofS G3, and to Kuwait as a Paladin battery commander. He holds a Master of Arts in Human Resources Development from Webster University, St. Louis, Mo., and a Bachelor of Science in Accounting from Bucknell University, Lewisburg, Pa.

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Major Nikolaus Guran, Field Artillery, serves as the plans officer for the 19th Battlefield Coordination Detachment at Ramstein Air Base, Germany. Previously, Guran served as the battalion S-3 then executive officer of the 4th Battalion, 319th Airborne Field Artillery Regiment, 173rd Airborne Combat Team, forward deployed to Forward Operating Base Airborne in Wardak, Afghanistan. He has had multiple battery and company commands while assigned to the 101st Airborne Division at both Fort Campbell, Ky., and while deployed to Iraq. He is a graduate the United States Marine Corps Command and Staff College at Quantico, Va. While at Quantico he earned a master's in Military Studies from the Marine Corps University.

# “Strike Hard!... Strike Fear!”

By LTC Todd Wasmund, LTC Thomas Nguyen, and MAJ Tyrone Martin



Leaders of 1st Battalion, 17th Field Artillery Regiment and the 2nd Battalion, 44th Air Defense Artillery Regiment participate in an exchange of colors ceremony during their concurrent deployments to Afghanistan. (Photo courtesy of LTC Todd Wasmund)

“Strike Hard!...Strike Fear!” The mottos of the 1st Battalion, 17th Field Artillery Regiment and the 2nd Air Missile Defense Battalion, 44th Air Defense Artillery Regiment could be heard nearly in unison during their deployment to Afghanistan.

June 17, 2011, marked the day 1st Fires Battalion, 17th Field Artillery Regiment and 2nd Air Missile Defense Battalion, 44th Air Defense Artillery Regiment exchanged battalion colors to signify the end of their accidental partnership while deployed to Afghanistan in support of Operation Enduring Freedom. Both 1-17 FAR and 2-44 ADA are members of the Fires community, headquartered at the Fires Center of Excellence at Fort Sill, Okla. In March, 2010, the two battalions received orders to deploy to Afghanistan in support of the NATO Training Mission, advising the Afghan National Security Forces (ANSF). During

early planning for the mission, the 1-17 FAR command team traveled to Fort Campbell, Ky., to meet with 2-44 ADA and a fast friendship was formed. Throughout the deployment, the battalions relied on each other for mutual support and camaraderie. The two battalions collaborated to support NATO Training Mission – Afghanistan (NTM-A), but they were split up to support two different elements of the mission. 1-17 FAR was integrated into Combined Training Advisory Group – Army (CTAG-A), and 2-44 ADA was aligned with Combined

Training Advisory Group – Police (CTAG-P).

The command team of 2-44 ADA was LTC Thomas Nguyen and CSM William Maddox. The battalion comes from Fort Campbell, and is one of the few remaining Avenger battalions left in the United States Army. Its missions were spread out over 37 locations throughout Afghanistan. The *Strike Fear!* battalion's missions included Logistics Training Advisory Group (LTAG), Medical Training Advisory Group (MTAG), Afghan National Police (ANP) training, and other various police-focused training centers located around Afghanistan. This was 2-44

Soldiers from the 1st Battalion, 17th Field Artillery Regiment and the 2nd Battalion, 44th Air Defense Artillery Regiment participate in an exchange of colors ceremony during their deployments to Afghanistan. (Photo courtesy of LTC Todd Wasmund)





From the left, LTC Todd Wasmund and CSM Philip Brunwald, from 1st Battalion, 17th Field Artillery Regiment, LTC Thomas Nguyen and CSM William Maddox, from 2nd Battalion, 44th Air Defense Artillery, hold the plaque to commemorate the exchange of colors ceremony. (Photo courtesy of LTC Todd Wasmund).

ADA's fourth deployment in eight years, serving the three previous in support of Operation Iraqi Freedom conducting counter-rocket artillery missions (C-RAM) and convoy security operations.

The command team for 1-17 FAR was LTC Todd Wasmund and CSM Philip Brunwald. The battalion originates from Fort Sill and is an M109A6 Paladin battalion. Upon arrival last year to Afghanistan, 1-17 FAR dispersed to Kabul, Herat, Kandahar, Gardez, Mazar-e-Sharif, and other cities within Afghanistan. Some of the main missions the battalion conducted were located at the Regional Military Training Centers (RMTC), Medical Training Advisory Group (MTAG), Afghanistan National Army (ANA) Combat Medic Course, ANA Physician Assistant School, Counter-insurgency Training Center-Afghanistan and many Security Force movement teams located throughout Afghanistan. Overall, the battalion conducted 21 separate missions at 16 locations in

five of the six regional commands of Afghanistan, having a significant impact on the overall training of more than 100,000 ANA soldiers and officers. This was the *Strike Hard!* battalion's third deployment, supporting both Operation Iraqi Freedom and Operation Enduring Freedom.

The exchange of battalion colors between 2-44 ADA and 1-17 FAR was symbolic of the bond between these two battalions and the strength of the Fires community. *Strike Fear!...Strike Hard!* The 1-17 FAR redeployed to Fort Sill in July 2011, but their connection with 2-44 ADA remains steadfast.

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Lieutenant Colonel Todd Wasmund was the commander of 1st Battalion, 17th Field Artillery from June 2009 through August 2011. He assumed duties as the director of the Office of Strategic Communications, Fires Center of Excellence, Fort Sill, Okla., on August 17, 2011.

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Lieutenant Colonel Thomas Nguyen is a 1991 Graduate of Towson University, Md.

where he received a Bachelor of Science in Physical Education. He was commissioned a Distinguished Military Graduate through the Reserve Officer Training Corps at Loyola College of Baltimore. He holds a master's degree from Central Michigan University. Nguyen assumed command of 2nd Battalion (Air Assault), 44th Air Defense Artillery Regiment on June 17, 2009. On July 2, 2010, he deployed the battalion on its latest 'rendezvous with destiny' to Afghanistan in support of Operation Enduring Freedom and the NATO Training Mission-Afghanistan

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Major Tyrone Martin, FA, is the battalion executive officer for 1st Battalion, 17th Field Artillery Regiment, part of the 75th Fires Brigade at Fort Sill, Okla. During his most recent deployment to Afghanistan, he was the operations officer for the battalion as well as the senior military advisor to the ANA Regional Military Training Center - Darulaman. Among his other assignments were: military analysts at the Center for Army Lessons Learned, commander of Bravo Battery, 1-17 FA, and assistant operations officer both in the 4th Battalion, 1st Field Artillery, 3rd Brigade Combat Team of the 1st Armored Division in OIF I and III.





U.S. Army Privates 1st Class Danica Sasakura and Dean Werner, Patriot missile operators from Charley Battery, 1st Battalion, 1st Air Defense Artillery, perform pre-launch checks on a Patriot Missile launcher as part of a field training exercise. Kadena Air Base hosts the largest combat wing in the Pacific and includes U.S. Air Force, Army, Navy and Marine Corps assets. (Photo by Airman 1st Class Maeson L. Elleman, U.S. Air Force)

# Patriot Integrates into the Joint Environment: Continued Pursuit of Lethality

By CPT Nicholas Sattler and 1LT Aaron Devig

**P**atriot operations on Okinawa. In November 2006, 1st Battalion, 1st Air Defense Artillery Regiment was relocated from its home station of Fort Bliss, Texas, to its new home, at Kadena Air Base, Okinawa, Japan. The unit immediately began its mission of defending the largest U.S. military power projection platform in the Pacific Command (PACOM) theater of operations. As a unit stationed on Okinawa, 1-1 ADA has become part of a multi-service environment and culture. The operational environment encompasses all active duty components of the United States Armed Forces - Army, Navy, Air Force, and Marines - in addition to our combined forces partners, the Japanese Air and Ground Self Defense Forces.



Soldiers assigned to Alpha Battery, 1st Battalion, 1st Air Defense Artillery, in Okinawa secure a canister onto a launcher during their Table VIII training at Kadena Air Base. (Photo courtesy of U.S. Army)

Since 2006, 1-1 ADA has continuously integrated itself with the controlling authorities on the island to exercise the Joint Kill Chain network. 1-1 ADA is unique in that it is the only Patriot battalion in the United States Army that has been forward stationed without a direct brigade-level element of command and control to support it. The battalion has become responsible for the creation of the Joint Kill Chain with its joint partners and the help of its higher headquarters, the 94th Army Air and Missile Defense Command, a theater level command element located at Fort Shafter, Hawaii.

Joint Kill Chain centers require the close coordination between all airspace players. On Okinawa, without a brigade level element, 1-1 ADA has had to field its own air defense artillery fire control officers (ADAFCO).

1-1 ADA has been robustly conducting its integration with its controlling elements. Through individual events and small exercises, 1-1 ADA has laid the groundwork for the exact Joint Kill Chain dynamic necessary to support and defend the integral platform of Okinawa in the PACOM Theater. The next step in fully validating the Kill Chain comes

from the unit's ability to deploy, defend and communicate across the air defense link architecture with these controlling authorities.

1-1 ADA completed its second battalion field training exercise with units deploying across the island to validate its war-time postures during the week-long Operation Spurious Storm in conjunction with an Air Force local operational readiness exercise (LORE). One firing unit left its home station on Kadena Air Base and traveled to Marine Corps Air Station (MCAS) Futenma to conduct operations in defense of a critical piece of infrastructure and validate its ability to defend it in coordination with the Joint Kill Chain.

**Main element of Patriot is joint integration.** A Patriot unit will always defend its assigned assets. Patriot in the PACOM area of responsibility – which can be extrapolated to the overall mission – goes beyond shooting down tactical ballistic missiles and track deconfliction. The critical element is the integration with Joint Kill Chain controllers in the fight.

Although trained for such a situation, Patriot will not fight on its own. The result of this individual fight has been experienced in the past and the lessons learned have

been rapidly incorporated into our training and operational doctrine. The integration with outside sources from the Air Force, Navy and Marines is critical in the successful defense of assigned assets.

Operation Spurious Storm exercised two forms of communication, both external to the battalion. One included the attachment of our ADAFCOs to the critical controlling authority in airspace management. The second exercised our lateral communication with the defended installation.

**1-1 ADA operates with an established framework of success metrics.** In 1-1 ADA, we operate on an established and vivid collection of success metrics. The outdated 'shoot, move, communicate' mantra has been adapted to one of 'shoot, move, communicate, sustain, and maintain.'

As the operation was being developed from battalion level military decision making process (MDMP) to the battery level troop leading procedures (TLPs), the focus of the operation fell to the following five elements:

**Move.** One of the most beneficial aspects of the Patriot system is its mobility. Our units are able to drop from the fight, pack up, and move to an entirely new location as the threat changes. Our ability to maneuver provides commanders at all levels the flexibility to adjust its defense coverage as the threat changes. No single threat remains the same and no defense system, to include Patriot, is effective if it cannot maneuver to meet the changing threat. Bravo and Delta Battery conducted two movements as part of this exercise to validate the battalion's ability to provide coverage wherever the commander needed it. As soon as the exercise's intelligence updates indicated the need, both Bravo and Delta deployed off Kadena Air Base and established themselves as self-contained air defense elements on the island. In addition, as the threat changed again during the exercise, both units deployed a second time, this time in a combination of mission

oriented protective posture (MOPP) 2 and MOPP 4. The crucial element of mobility is integral to Patriot success and was shown as an expert skill of the Soldiers of 1-1 ADA.

**Shoot.** The most crucial element of a Patriot unit is its ability to destroy any and all threats. All training and preparation come to a focused point when it is time to put missiles into the air. Every action of every Soldier every day is centered on this purpose. The combat-proven capability of Patriot centers on its unbeaten skill of engaging and destroying enemy threats, whether it be aircraft, unmanned aerial vehicles (UAV), cruise missiles, or tactical ballistic missiles (TBM). During this operation, Patriot fought several air battle simulations integrated with the Air Force and Marines. While no missiles were fired, the simulated air battle exercises proved hostile targets could be tracked, identified, and then passed from sensors to controllers

to shooters across all branches of service.

**Sustain.** Patriot, along with any unit in the military, is only as strong as the support chain that lets it fight. 1-1 ADA, though deployed to multiple locations across Okinawa, found its Echo Company (maintenance) was flawless at providing support necessary during its daily LOGPAC operations. From food to fuel, to missile resupply, the organic supply network kept the units in the fight. No external support was necessary, even if each unit was fighting on a different support structure. If dining facilities were not available, our mobile kitchen trailers (MKTs) would provide food for our Soldiers. If fuel was not available on sites, our logistical packages (LOGPACs) would bring it from the fuel distribution points on the island. As repair parts were received, units would have them brought to the firing batteries to keep the units fully

mission capable. Never did our units lose their defensive posture of their assigned assets because of lagging supply chain issues.

**Maintain.** Each unit deploys with its own maintenance team for both the conventional maintenance and complicated systems maintenance of our air defense equipment. Although the plan was in place for relief if necessary, our maintenance teams kept the system in the fight and kept us from utilizing the next level of maintenance facility. The fighting units were able to continue fighting as individual units, validating our ability to deploy and fight as battery level packages as opposed to a unit solely dependent on battalion support.

**Communicate.** To the untrained eye, a Patriot battery might seem like a signal unit that shoots missiles. The communication infrastructure is elemental to its ability to defend

USMC Capt. John P. Ogiba, Tactical Air Operations Center (TAOC) flight commander, Marine Air Control Squadron 4 (MACS-4), speaks to Soldiers with the 1st Battalion, 1st Air Defense Artillery Regiment during a tour of the TAOC used for the Marine Division Tactics Course at the Central Training Area. MACS-4 hosted the tour for Soldiers to showcase the behind-the-scenes magic that provides air surveillance, air defense and air control for the island of Okinawa and the U.S. Pacific Command area of responsibility. (Photo by Lance Cpl. Matheus Hernandez, U.S. Marine Corps)





USMC Capt. John P. Ogiba, Tactical Air Operations Center (TAOC) flight commander, Marine Air Control Squadron 4 (MACS-4) speaks to Soldiers with 1st Battalion, 1st Air Defense Artillery during a tour of the TAOC used for the Marine Division Tactics Course (MDTC) in the Central Training Area (CTA). MACS-4 hosted the tour for Soldiers to showcase the behind-the-scenes magic that provides air surveillance, air defense and air control for the island of Okinawa and the Pacific Command. (Photo by Lance Cpl. Matheus Hernandez, U.S. Marine Corps)

assigned assets. Through ultra high frequency (UHF), very high frequency (VHF), secure internet protocol router (SIPR), non-secure internet protocol router (NIPR), DSN, secure terminal equipment (STE), very small aperture terminal (VSAT), satellite communications (SATCOM), and land mobile radios (LMRs), the fight continues through it all. The control of the Joint Kill Chain requires reliable, real-time links between the controlling authority and the firing batteries. Because we have many means of communication that are not limited to only Army units, it increases the ability to talk to other branches. This organic capability, which the operators themselves have trained on to become experts, guarantees our units will not have to fight an autonomous fight. The overt redundancy of such an infrastructure

provides the unit commanders the ability to adjust as the situation dictates. An initial assessment of a cumbersome burden quickly turns to a sincere appreciation for the unmatched capability.

It is this unmatched communication capability, however, that provides us with the greatest area for improvement. The ability for the firing units to communicate with our battalion information and coordination central (ICC) has never been an issue of improvement. This capability is validated at a minimum of bi-weekly and even more when air battle exercises are conducted, mostly on a twice-weekly basis. The communication between the firing units and the battalion elements is crucial to the Joint Kill Chain and will always be the primary focus of our units. Where we stand to improve is on the lateral external

communication with the defended asset. Operation Spurious Storm has provided Delta Battery with the basis from which to work on increasing the connectivity between the defender and the defended.

**Operational example—Operation Spurious Storm.** As Delta Battery deployed to MCAS Futenma for Operation Spurious Storm, the focus of the exercise was validating the Joint Kill Chain as we had for the first time integrated our own ADAFCOs with the higher controlling authority. What quickly became apparent was the communication between the MCAS Futenma emergency operations center (EOC) and the firing battery was in its infantile stage.

The Futenma EOC has the mission of being the nerve center of the air station. In any situation on Futenma, the EOC is the point of contact for

the commander, MCAS Futenma, as well as the communication center for increases or decreases in the station's defensive posture. This is an integral link for the commander to properly posture his own installation for possible threats.

The threat developed for Operation Spurious Storm focused on a tactical ballistic missile inbound for the island, specifically MCAS Futenma. This threat and Delta's occupation of a site on MCAS Futenma highlighted the disparity of situational awareness of the defenders and the defended asset of MCAS Futenma itself.

A Patriot battery's area of interest (AI) extends further than arguably any other Army tactical unit. Our understanding of indicators and warnings - from as far as North Korea - puts us in a position to provide early warning to the defended installation as situations arise. The daily intelligence updates to the Delta Battery commander allow him to posture his unit based on the changing threat. This daily intelligence is not specific to the defending unit, however. This intelligence is essential to the defended installation for their own posturing of forces, in both an active and passive sense.

The Futenma EOC has its own vigorous communication infrastructure to rival the organic Patriot communication ability illustrated above. These capabilities include SIPR, NIPR, DSN, voice over internet protocol (VOIP), video-conference, emergency phone networks, LMRs, mass e-mail, and big voice notification capacities. Troubleshooting, exercising, and reviewing of options was conducted to identify the ideal linkage between the defender and the defended. The incredible communication ability of both organizations provided us with an invaluable 'leg-up' in this coordination.

What was found as the best avenue for information dissemination during this short operation was the inclusion of the Futenma EOC in the daily commander's update briefs. For these daily morning briefings,

1-1 ADA is currently using the SIPR Defense Connect Online (DCO), a video teleconference program that simply requires a SIPR internet connection. Through this program, the entire unit is able to send and receive updated informational slides on a daily basis. Once connected, even from remote locations, all participants are able to talk and listen as the briefing occurs. The intelligence briefs, unit updates, and supply disposition reports of all units are ready and available to all those invited to virtually attend the brief. Once established, this provided valuable situational awareness to our defended asset even while the commander was not present with them in the EOC.

As the way forward, continued integration of the defended unit into the daily commander's update briefs is of the utmost importance. The intelligence updates available to the Futenma EOC and a greater understanding of the situation as it affects the island as a whole provides preparedness and timely decision making to the commander of MCAS Futenma.

Tactical updates in real time updates are the second effort in the information link between the defending unit and MCAS Futenma. For the short duration of this operation, LMRs proved effective. For continued operations, another form of communication will need to be determined. VOIP phones and STE connections are in need of validation. SINCGARS connectivity to the battery FM net is a secondary option. Overall communication with the Futenma EOC will be part of mission planning for future exercises. Also, Delta Battery will begin to integrate external communication into its training to make communication with the defended asset part of the unit's battle drill in the scenario of a threat launch and intercept.

Patriot must extend beyond the ballistic missile defense mission and incorporate the general passive defense of the area in which it operates. During a war time scenario, the EOC would be the link between

a Patriot battery and the air station. After receiving word of an imminent attack, they would prepare the air station for a possible strike, flushing aircraft and equipment and overall increasing their preparedness. Delta Battery is not the only notification source for the EOC, but with our intelligence and situational awareness, we can provide them with much needed information to make proper decisions of their own. Because of its overall importance, Patriot has a responsibility to ensure communication between it and the defended is uninterrupted and effective.

The primary learning point from this field-training exercise is Delta Battery and 1-1 ADA can and will defend the strategic power projection platform of Okinawa from any and all threats that materialize against it. The battalion's 'shoot, move, communicate, sustain, and maintain,' capabilities are unmatched and are continuing to improve with each iteration of training at the individual unit level to the levels of battalion and higher. 1-1 ADA is crucial to the PACOM Theater and will continue to bolster its ability to defend its assigned assets.

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1st Lieutenant Aaron L. Devig is the battery executive officer for Delta Battery, 1st Battalion, 1st Air Defense Artillery Regiment stationed on Kadena Air Base, Okinawa, Japan. His previous assignments include fire control and launcher platoon leader for D/1-1 ADA. He holds a Bachelor of Science in Chemical Engineering from the United States Military Academy.

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Captain Nicholas Sattler currently serves as the commander of Delta Battery, 1-1st Air Defense Artillery. Previously he was a platoon leader and tactical control officer in 5-52nd Air Defense Artillery at Fort Bliss, Texas, where he deployed twice in support of Operation Enduring Freedom. He is an honor graduate of the Air Defense Captains Career Course in 2010. In 2007, he received a Bachelor of Science in Public Policy Analysis from Indiana University and earned a Master of Arts in Leadership Studies from University of Texas, at El Paso in 2010.

# Counter-Rocket, Artillery, and Mortar (C-RAM) Joint Intercept Capability: Shaping the Future Joint Force

By LTC Chris Corbett, U.S. Air Force MAJ Bryan Beigh,  
U.S. Navy Lt.Cmdr. Shea S. Thompson

**D**uring Operation Iraqi Freedom (OIF), insurgents continued to pose serious dangers by employing indirect-fire tactics of quick-attack, low-trajectory, urban terrain-masked rocket, artillery and mortar (RAM) strikes against U.S. forward operating bases (FOB) in Iraq. To combat this threat, the Army developed a counter-rocket, artillery, and mortar (C-RAM) capability – an integrated set of capabilities, providing warning and intercepting RAM threats.

In 2005, a small, intrepid battery of U.S. Army Air Defense Artillery Soldiers deployed to Iraq to protect the multi-national coalition against persistent and deadly indirect fire (IDF) attacks perpetrated by a thinking, innovative enemy. The system, known as C-RAM, troops deployed with and fielded, has since become known as the indirect fire protection capability (IFPC). This capability has seen a spiral development from proof-of-concept design to a viable component of our joint force protection requirements. This system-of-systems has grown rapidly and experienced its share of resource challenges across the services. Nonetheless, the IFPC capability is expanding its strike and shield effects to Afghanistan, where it continues to save lives. Although some skeptics regard the C-RAM system as an ‘ad-hoc,’ un-resourced and likely short-lived OIF phenomenon, this nascent capability not only reinforces the joint urgent operational needs (JUON) process, but it exemplifies emerging attributes of the future joint force organization, planning, and conduct of operations.

**A**symmetric threats create an urgent joint need. A key component of fielding a joint capability is the way in which the system or unit is organized, to include the required structure, personnel, equipment and resourcing methods (DOTMLPF domains). The advent of C-RAM truly exemplifies how well and rapidly a combatant commander (COCOM) leverages existing programs and processes to enable this counter-fire capability.

Presently, the U.S. continues to face an agile and adaptive adversary in OIF and Operation Enduring Freedom (OEF) who employs innovative tactics, inflicting harm and undermining resolve.

Now, as in 2004, as the indirect fire (IDF) threat severely impacts multi-national coalition forces, and it is evident in ‘irregular’ warfare (IW), a less powerful adversary seeks to disrupt or negate the military capabilities and advantages of a more powerful, conventionally armed military force” (Joint Publication 3-0, Ch.1, p. xi *Joint Operations*)

This was precisely the predicament that CENTCOM encountered just one year into the start of OIF. Coalition casualties continuing to mount, not only from deadly and maiming improvised explosive devices (IED), but also from a new form of attack that friendly forces neither anticipated, nor had the capability to effectively counter. Enemy insurgents began employing small mortar teams of two to three fighters, often under the cover of darkness, to launch attacks on coalition FOBs, combat outposts, and checkpoints.

While these enemy teams became adept at ‘shooting and scooting,’ they continued to refine their tactics, techniques, and procedures while becoming increasingly more effective in delivering harassing and accurate Fires into U.S. cantonment areas. The U.S. owned the bases; the enemy owned the night. The U.S. built bunkers and sent patrols to known launch locations while the enemy

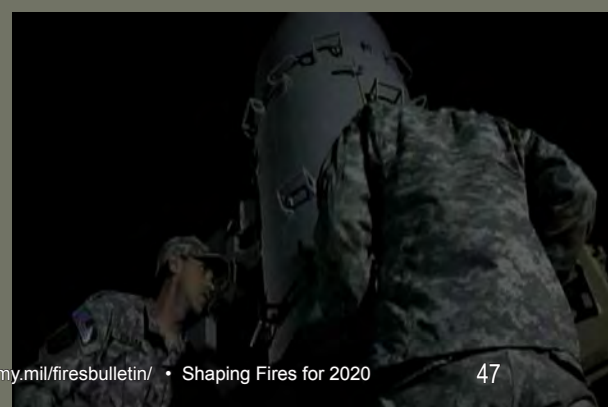
simply shifted to new sites and adjusted azimuth and distance to continue targeting the same billeting areas, dining facilities, and command and control nodes with impunity. The U.S. owned the ground, but the enemy continued to exploit the joint principles of surprise, movement, and maneuver.

The enemy also adapted its mix of munitions and delivery as coalition forces began to seize caches of mortars from river beds and rooftops in 2005, slightly disrupting enemy IDF teams' sustainment operations. Rockets, such as the Chinese-made 107 mm Katyusha variants, were then brought to bear on coalition troops. A steady stream of these weapons poured through the borders and into the hands of insurgents. In addition to traditional mortar tubes and tripods, the enemy began mounting multiple rockets on the back of trucks and sometimes even donkey carts, thus enabling them to conceal the rockets and conduct brazen, daylight attacks at an ever-increasing closer range.

Increasing coalition casualties from these attacks raised concerns both in the Iraq theater of operation and on the U.S. home front as field commanders tried to come to grips with an insidious threat for which they were neither prepared nor equipped to counter. To compound the problem, allied countries like the United Kingdom (UK) and Australia began putting pressure on the U.S. to do more to stop the multi-national troop casualties caused by the IDF threat, which included young British servicemen stationed in Basra. Thus, not only were the IDF attacks having tactical-level effects, they also had strategic implications for the coherence of a U.S. led alliance. Slowly, individual expressions from commanders about the need to counter the IDF threat began to resonate into a chorus of demand for a wholesale capability to protect the force. The situation eventually reached a crisis in June 2004, when the CENTCOM Commander, GEN Anthony Zinni, received approval for a theater-generated joint urgent operational needs (JUON) statement "for an indirect-fire intercept capability, which was validated by the Army staff," with funding for a proof-of-principle test that same year.

If necessity is the mother of invention, then it is fitting that both C-RAM and the joint staff process that enabled it were born out of commanders' need to accelerate the frustratingly deliberate acquisition process for new capabilities. Specifically, the chairman's 2004 rapid validation and resourcing of JUONS in the year of execution played a pivotal role for the success of C-RAM and the advent of a streamlined process to respond to new and emerging threats in the contemporary operating environment. A JUON need is one that, if left unfulfilled, will seriously endanger personnel and/or pose a major threat to ongoing operations. Furthermore, it must fall outside of established service processes and require a timely solution with COCOM prioritization and joint staff validation. Like powerful offspring from the mind of Cronos, C-RAM's JUONS-enabled siblings eventually included kindred OIF entities like the Joint Improvised Explosive Device Defeat Organization (JIEDDO), mine resistant ambush protected (MRAP) vehicles, and active denial systems, which created viable solutions delivered as quickly as a few months.

New organizations, like the Joint Rapid Acquisition Cell (JRAC), designated by the deputy secretary of defense in 2004, transformed the former joint process used to resolve immediate warfighter needs. As opposed to service-specific approaches to complex problems, according to "Overview of Joint Rapid Acquisition Cell," a briefing for the Department of Defense Cost Analysis Symposium by William E. Beasley, the JUONs "focused upon joint solutions, using existing



All photos courtesy of the U.S. Army

technology, contractor off the shelf [or] government off the shelf equipment, and logistics" to address COCOM requirements. This approach is exactly the path the U.S. Army, as lead service, followed in developing a system to defeat adversary IDF in Iraq. In 2005, the defense industry competed in a kind of proof-of-principle rodeo competition, organized by Army Testing and Evaluation Command (ATEC) at Yuma Proving Grounds, Ariz., in order to see which system could fulfill the counter-IDF JUONs.

When the dust settled, a system of netted sensors and shooters from the U.S. Army, Navy, and defense contractors emerged victorious. Specifically, the Navy's Phalanx gun, which was already proven on ships in its close-in weapons system (CIWS) role, was mounted onto flatbed trailers and connected with existing field artillery radars. This included the powerful phased-array Firefinder radar and the man-portable Lightweight Counter Mortar Radar (LCMR), which have been used with great effect by U.S. Army Special Forces. These components were linked through command and control equipment from the Air and Missile Defense Workstation Systems (AMDWS), allowing for human-operator interface and remote operation in a joint/base defense operations center (JDOC/BDOC). Additionally, commercial speakers, known as WAVES towers, were tied into the network allowing for automated audible warnings of 'incoming, incoming!' It isolated the IDF attack to a localized area so the remainder of the FOB could continue to operate. Leveraging existing technologies in the DoD and private industry is the real success story, as it provided a nearly immediate joint solution to an existing problem. Not the typical acquisition process—a 15 to 20-year requirement for concept validation, development, resourcing, testing, and fielding to the operating force. This point bears emphasis: the joint force must be more responsive and quicker at adapting to new threats than in past conflicts through a rapid acquisition and fielding system. Counter-Rocket, Artillery, and Mortars (C-RAMs) rise from concept to capability, in a little more than 18 months, truly exemplifies the need and ability of our future joint force to organize quickly, as well as our U.S. military forces' ability to observe, orient, decide and attack while disrupting the enemy's decision cycle, as discussed in the April 21, 2010 *Defense Systems* article, by Barry Rosenberg, "Military seeks to disrupt the enemy's decision cycle: The lessons of Iraq don't readily translate to the dynamics in Afghanistan."

**C**urrent operations shape future joint fight. C-RAM also has strong implications for the joint force, in the way it currently conducts operations, by leveraging cross-service competencies and capabilities. This is the approach the Joint Capabilities Integration Development System (JCIDS) seeks to use by first defining requirements and then using the analytical approach of "evaluating solutions from an operational perspective" across the domains of Doctrine, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF), according to the

2nd quarter 2011, Joint Capabilities Integration and Development System Directive. Current operations by coalition C-RAM forces, in Iraq and Afghanistan, illustrate the importance of this joint approach and how DOTMLPF as a design construct is shaping both current and future joint force capabilities.

In a *Fires Bulletin* article, (May-June 2011, "Saving lives and protecting critical assets:) LTC Michael Morrissey, CPT Shannon Billig, and SGM Brian Damron reflected on their deployment experiences with Joint Task Force 5-5 and identified many lessons learned, for the task force that are relevant to joint operations. Examining Joint Task Force 5-5, we can better understand how C-RAM formations like this are "saving lives and protecting critical assets in an era of uncertainty" while also fulfilling the secretary of defense's vision for joint solutions to joint problems as laid out in JCIDS. Specifically, Joint Task Force 5-5 was "composed of Soldiers, Sailors, and civilians," in order to complete a C-RAM mission in support of OIF and New Dawn. What is remarkable here is the importance of how the joint force organized, beginning in 2008, through the introduction of the C-RAM joint intercept batteries (JIBs).

At the start of C-RAM unit deployments (beginning in 2005), there was no joint structure. Army elements bore the brunt of the manpower (Personnel in DOTMLPF) requirements, augmented by a few Navy Sailors to help operate and maintain the land-based Phalanx Close in Weapons System (CIWS) guns. Over time, requirements for IDF protection grew, along with U.S. and coalition forces' abilities to provide the C-RAM capability – including more intercept capacity with an increased number of Phalanx guns in the Iraq Theater (materiel considerations). As a result, the Navy 'stepped up to the plate' by providing a joint solution to increasing manpower demands with more operating bases to protect. In 2007, C-RAM liaison officers (LNOs) in Multi-National Corps Iraq's (MNC-I) Joint Fires and Effects Cell first conceived of an actual Joint Intercept Battery (JIB). It was composed of approximately 75 Sailors and 72 Soldiers, a vision which was codified in a formal CENTCOM request for forces (RFF) requirement submitted through the force generation process. In 2008, the first of two JIBs arrived in Iraq, along with two purely sense-and-warn batteries (no intercept capability). These units were then assigned to their respective multi-national division in the area of responsibility, and then supported by a parent tactical command post (TAC) corps level. This was not just an important milestone, in terms of joint manning for the C-RAM program; it was simultaneously a great advance in providing better command, control, and leadership for a critical – but non-standard – capability against IDF in Iraq (aspects of Organization and Leadership in DOTMLPF). This robust direction and leadership of the C-RAM formations in theater was further increased in 2009, when centralized battalion command and control of the units in Theater became the new norm, to better





PFC Alysha Gleason and SGT Chad Ervin, both members of the counter-rocket, artillery and mortar (C-RAM) Team, Echo Battery, 4th Battalion, 5th Air Defense Artillery Brigade, conduct maintenance on a radar station at Forward Operating Base Delta in southern Iraq. (Photo by SSG Brien Vorhees, U.S. Army)

support the multi-national divisions. From its inception in 2005, C-RAM capability in Theater grew quickly with the joint resourcing needed to properly control this critical capability and save Soldiers' lives.

C-RAM units, as joint organizations, are able to work with other services and agencies at all levels of war. Joint Task Force 5-5, for example, continued the work of previous C-RAM task forces by providing "more than 589 successful warnings and 24 intercepts against enemy IDF attacks ranging from rudimentary to complex; and single to multiple round attacks composed of up to 33 rockets."

Moreover, in addition to tactical successes, JTF 5-5 expanded the work of previous task forces, like Task Force 2-44 ADA, which formed the initial C-RAM TAC at the Corps level in 2008. This unit pioneered the techniques of orchestrating C-RAM activities throughout the theater for the combatant commander while supporting multi-national divisions that commanded the units. This orchestration of IDF protection functions included inter-agency analysis of IDF attacks, including U.S. government forensics teams, as well as pattern analysis incorporated in MNC-I's Joint Intelligence

Center (JIC). Additionally, JTF 5-5 exemplified a whole-of-government or 'comprehensive' approach while supporting Operation New Dawn and U.S. Forces Iraq (USF-I). Through close coordination with the U.S. Department of State security team, the task force was able to set up a C-RAM sense-and-warn operation inside the U.S. Embassy's tactical operations center. This resulted in the protection of a provincial reconstruction team in Basra while simultaneously supporting an Iraqi artillery Q36 radar training academy. C-RAM fights jointly, but also works well with other players on a joint interagency, intergovernmental, and multinational (JIIM) level. Clearly, current C-RAM operations understand and execute the JIIM model, which is imperative for U.S. forces now and in the future.

**D**octrine matters too. It is important to note C-RAM is not a perfect weapon system, particularly in the materiel domain, where the intercept capability still has room for improvement. Recent testing and development programs have included directed energy solutions, but the real success behind C-RAM is that it employs a doctrinally-based systems approach, tackling a wicked problem; this joint solution is not simply a



weapons-centric mindset towards the dilemma. As with most complex problems, countering enemy IDF attacks requires a thorough understanding of the operational environment, framing the problem and developing an effective solution. Operational and strategic planners often apply analytical models and systems, like political, military, economic, social, infrastructure and information (PMESII), to create a framework to link the elements of ends, ways, and means. C-RAM applies a similar operational framework by leveraging a system-of-

systems approach to counter IDF threats. There are literal sensor and shooter systems linked together to protect the force, as well as adherence to doctrinal systems, which achieve overall synergy across the C-RAM functional pillars of integrated shape, sense, warn, intercept, respond, protect, and command and control.

While there is no official joint doctrine for C-RAM, Soldiers and Sailors contributed greatly to the IDF protection capability capstone Field Manual 3-01.60, *Counter-Rocket, Artillery and Mortar Operations*, released in



Left: SPC Jamael O. Turner shows one of the first rockets his unit shot down with the Counter-Rocket Artillery and Mortar (C-RAM) system at Joint Base Balad, Iraq. Turner, who is with Alpha Battery, 2nd Battalion, 44th Air Defense Artillery Regiment, out of Fort Campbell, Ky., operates the C-RAM which can identify, track, and shoot the motors and rockets out of the sky before they detonate. (Photo by SPC Brian A. Barbour, U.S. Army)

July 2009. Although an Army publication, it embraces a joint perspective and systems approach in understanding and defeating the IDF threat. To illustrate, we will examine the C-RAM functions during a typical IDF attack scenario. First, the joint force must 'shape' the environment by "knowing the threat forces, their capabilities, and patterns so that we can make the best proactive use of our resources." This means conducting pattern analysis of historical launch and impact points,

as well as types of munitions, times of attack, and which critical assets are targeted repeatedly.

This is a joint effort involving different services, agencies, and multinational partners such as UK forces in Basra, who helped fight IDF insurgents. Shaping also involves adjusting our intelligence-collection efforts and enemy-terrain denial efforts, via means such as coalition patrols and Iraqi security force direction. The next pillar or function is to 'sense' an IDF attack. This is accomplished by using sensors, like the aforementioned lightweight counter-mortar radars (LCMR) and Firefinder Radars, as well as Sentinel radars that simultaneously contribute to joint airspace management. Until now, we have highlighted C-RAM intercept capability. Certainly, the big Phalanx guns provide a great deal of psychological comfort when stationed on a mortar and rocket targeted FOB or combat outpost (COP). However, 'warning' actually has the greatest impact in saving lives by providing up to 15 seconds of localized, audible warnings in the impact area. This allows those in the impact zone to get in the prone position, quickly don ballistic vests if nearby, and/or duck inside a bunker. These procedures are not just codified in doctrine, they are also taught at joint reception stations during orientation briefs, in theaters like Kuwait's Camp Buehring, for Soldiers, Sailors, and Airmen headed to both OIF and OEF destinations. The next function is to 'intercept' the incoming IDF projectile if it falls within the engagement zone of the Phalanx gun (often it does not). Despite the gun's limited tactical range, it has "achieved more than 130 successful intercepts of rockets and mortar rounds" and the firing of these 20 mm Gatling guns also produce positive strategic information operations effects – both for coalition troops and for the host nation population, according to the Department of the Army, Headquarters, "2011 Army Posture Statement, C-RAM."

The next function in the C-RAM system's approach to jointly defeating IDF attacks is to 'respond' to the event, both immediately and with follow on actions. There are many options to react to and counter the threat. The response is typically coordinated by the joint defense operations center (JDOC), such as the one at Joint Base Balad, Iraq, under the control of the U.S. Air Force's 332nd Air Expeditionary Wing. During and after attack, the JDOC in Balad has the ability to immediately divert available air weapons teams (i.e. Apache gunships) to the IDF launch site, while adjusting unmanned aerial reconnaissance assets like Predator and Reaper to put eyes on the site, locating the IDF insurgent team(s).

Similarly, if urban terrain and rules of engagement do not restrict joint Fires enough to prevent collateral damage, the JDOC can immediately direct counter-

battery fires upon the IDF attack point of origin. The JDOC also has the option to simultaneously deploy a ground quick reaction force (QRF) (i.e. coalition teams or Iraqi security forces) to investigate the launch site and capture the enemy IDF team. An effective combination of these JIIM-related responses is often employed and not just one tool applied to the problem. Similarly, a variety of means are used to 'protect' forces from the effects of IDF. Principally, this is done by hardening shelters with reinforced roofs and blast barriers, like the concrete T-walls that protect billeting areas, dining facilities, and non-hardened command and control nodes in Iraq and Afghanistan.

Finally, the last pillar of C-RAM, and certainly the most important, is the effective 'command and control' that is the real backbone to integrating all the capabilities and systems under competent leadership. The holistic system-of-systems approach yields a result far greater than the sum of the component parts. Ultimately, in its design, conception, and operation, C-RAM's birth marks clearly characterize it as the joint solution to a joint problem, embodying principles of joint doctrine that will continue to protect the force and save lives.

**Future implications for the joint community.** One of the most important characteristics of C-RAM operations is the way it reflects our joint-doctrine guidance, requiring a team-of teams, unified approach. Joint Publication 3-0, Joint Operations, states that "unified action is the synchronization, coordination and/or integration of the activities of governmental and non-governmental entities with military operations to achieve unity of effort." Clearly, like many other forces operating in the contemporary operating environment (COE), C-RAM units must achieve synergistic results by working with other military and non-military elements, as well as other U.S. agencies and multi-national coalition partners. The ability of C-RAM's tactical units to work with a wide range of partners, at multiple levels of war in the collective IDF fight, is a testament to their agile professionalism. It is also positive proof that joint forces must understand and apply joint-doctrinal concepts like unified action.

C-RAM is also relevant to future joint operations in its ability to counter the IDF threat across the full range of military operations in an era of persistent conflict. We know after 10 years of enduring conflict in two theaters of operation that "Indirect fire will be a constant factor. Whether facing a conventional or irregular threat, an indirect fire protection capability is required [since] adversaries will be determined, adaptive, use [a] wide array of tactics, and seek to avoid strengths." Unlike some of the distant future combat systems with yet-to-be determined capabilities and envisioned to fight a future adversary, C-RAM provides the joint force with a relevant, ready and responsive IDF capability on today's modern and complex battlefield.

The intent in this article is not to disparage the efforts of the intelligence community or the previous yeoman's

work done by the respective services' acquisition programs. C-RAM's success clearly validates the Joint Urgent Operational Needs Statement process along with other programs like the Joint IED Defeat Organization (JIEDO), MRAPs, and rapidly fielded intelligence, surveillance and reconnaissance (ISR) assets. Deliberate and sound planning, threat assessment, concept development, testing and fielding are important aspects of a viable acquisition system with long-term methods to field effective military systems. However, C-RAM is clearly a success story in the DoD's transformation initiatives, at the national and strategic level, helping to make the acquisition process more agile and responsive to a combatant commander's operational needs.

C-RAM's strong record of performance as a joint solution, using commercial off-the-shelf and existing military equipment, has won recent accolades, such as the "2010 Army Acquisition Excellence Award," for its implementation of an enhanced IDF radar network in Iraq and for establishing the first ever joint single integrated air picture." Further, this proven contribution to the joint fight is why DoD, with the U.S. Army as lead service, according to the 2011 HQDA Posture Statement, is transitioning "C-RAM to the indirect fire protection capability (IFPC) Program of Record and [will] to continue support and sustainment of the existing C-RAM capability through the overseas contingency operations process." If we cannot adapt faster than our enemy, we will ultimately lose. C-RAM is irrefutable proof we can adapt by rapidly fielding a joint solution to a joint problem.

Lastly, an important joint lesson learned from C-RAM operations is the resulting shortfalls in long-term manning and logistics solutions that result from sporadic and unsynchronized DOTMLPF growth. Specifically, U.S. service components always ensure trained and ready units arrive in theater at full strength, ready to perform their mission with a critical capability – which is never in question. In the case of C-RAM though, materiel developments, driven largely by rapid contractor testing and development progress, initially outpaced the U.S. Army's ability to source the capability with long-term rotational units. As a result, the manning fell largely to a handful of ADA short-range air defense units who repeatedly bore the load with frequent and multiple deployments, as well as a thin 'bench' of additional rotational units who helped shoulder the rotations and reduce stress on the force. Sailors, trained on C-RAM and particularly the Phalanx gun maintenance and operations, likewise experienced similar rotational requirements and turbulence. For this reason, the U.S. Army has experimented with creative sourcing solutions, like using the Echo batteries of several Patriot battalions (risking the principle of maintaining unit integrity), as well as alternating on and off with the use of U. S. National Guard ADA units. While this has succeeded in building the 'bench' of C-RAM capable units, the counter-IDF task, however, for these units, remains a non-standard mission. This mission is often performed strictly while

deployed and then set aside upon redeployment to the continental U.S. (CONUS), where forces resume their core missions of providing air defense to critical assets, such as the National Capitol Region. In the long term, the DoD and Department of the Army (DoA) need a coherent and enduring manning solution as C-RAM transitions to the IFPC program of record.

Logistics for the C-RAM program has grown in fits and starts along the materiel domain path where, initially, it was not keeping pace with the rapid, spiral development of the sensor, shooter, and command and control equipment in the acquisition process. Department of the Army approval in 2008, of a Mission Essential Equipment List (MEEL), was a milestone towards a robust logistics support system. Still, units faced real challenges, finding critical repair parts and maintaining prescribed load list stock levels of high-demand items, such as Phalanx radar and gun components. In an article, "Building an airplane in flight: leading, creating high-performance units," published in the July-August 2011 issue of the Fires Bulletin, COL Randall A. McIntire, former C-RAM Joint Task Force 3-3 ADA, battalion commander and currently the 69th ADA Brigade commander, Fort Hood, Texas, likened the challenges in Iraq to the task of 'building an airplane in flight,' in terms of organizational team development and materiel development:

"In the initial stages, the C-RAM program experienced its fair share of challenges. As a result, the program sustained early skepticism and criticism from many decision makers, particularly the Army staff. Over the course of several years, numerous adjustments and materiel improvements were made using combat field testing and spiral development."

The bottom line is—C-RAM continues to save lives and protect critical assets by contributing daily to the joint fight. Just as the nature of warfare is complex, so too can be the process of rapidly fielding a joint capability without closely coordinated action across different services and functional domains. Future joint urgent operational needs (JUONs)-driven capabilities will need to consider such growing pains and learn from C-RAM's trials and tribulations as it matures into an enduring program of record with the appropriate resourcing and service leadership. As we see today at some of the forward operating bases, the C-RAM system is organized under control of an Army battalion, using Air Force radars and monitoring, with Navy guns and fire control experts. Currently, the nature of the C-RAM system embodies the organization, planning and conduct of joint operations. Although challenges for manning and resourcing the system remain, the development of the C-RAM system underscores the importance of having an agile, joint acquisition process, the necessity for unified action and the wisdom of using a systems approach, at all levels of joint operations, to protect U.S. and coalition forces now and in the future.

Just prior to this article going to print, the Army approved a force design update that converts two short-



A Soldier conducts maintenance on a Counter-Rocket Artillery and Mortar (C-RAM) system. (Photo courtesy of the U.S. Army)

range air defense battalions into indirect fire protection capability (and Avenger) battalions starting in fiscal year 2014. This is a significant milestone in the organization and personnel domains and will help end ad hoc manning solutions for this critical capability. It also meets a growing need to counter the unmanned aerial system threat.

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U.S. Air Force Major Bryan E. Beigh is currently the branch chief in the Exercise Division (training, readiness and transformation) at the headquarters for U.S. Forces Korea (USFK), Seoul, South Korea. Previously, he served as the director of wing staff for the 33rd Fighter Wing and assistant director of operations for the 58th Fighter Squadron, Eglin Air Force Base, Fla., while being a mission commander in the F-15C. Beigh's previous assignments include flying the F-15C Eagle at Royal Air Force (RAF), Lakenheath, England, and instructing in the AT-38 Talon at Moody Air Force Base in Valdosta, Ga. He holds a master's in Business Administration from Trident University, Calif.

U.S. Navy Lieutenant Commander Shea S. Thompson is currently serving as the command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) operations officer in JFCC Global Strike. He was commissioned through U. S. Naval Academy in 1997, where he earned a bachelor's in Political Science. Prior to his current assignment, Thompson served as the Ballistic Missile Defense Syndicate lead at Tactical Training Group Pacific and weapons/ combat systems officer onboard USS John Paul Jones (DDG 53).

# *Digitally Aided Close Air Support: A Joint Perspective*

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By U.S. Marine Corps Maj. Jabari Reneau and Mr. Leonard Longhenry

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**“Digital communications supporting joint close air support (JCAS) have demonstrated increased effectiveness and the ability to reduce human error. All of the services have made significant investments in digital communications capabilities, but lack the integration and coordination for an effective, joint, digitally aided JCAS solution.”**

**-Joint Fires Today, July 2008**

The digitally aided close air support (DACAS) change control board (CCB) is making strides toward coordinated implementation of a single standard to ensure interoperability and simplify execution and training.

That was the opening paragraph of the last article on the status of DACAS. Since then there has been tremendous progress in shaping the capabilities of today with those of tomorrow. Where once there was no coordination, today program offices for aviation platforms and ground kits are willingly coordinating with each other to ensure that their planned software implementations do not adversely affect their interoperability with other systems. The DACAS Change Control Board (CCB) has become the body that assists the services with this focused effort.

The road to establishing the DACAS CCB has been long. The requirement for a body to help coordinate the military's efforts became apparent during the Joint Battle Management Command and Control (JBMC2) JCAS Joint Mission Thread (JMT) events, which produced three pivotal products. The first was the Desk Top Analysis (DTA), the second was a prioritized list of capabilities endorsed by the JCAS Executive Steering Committee (ESC), and the third was the recommendation that a joint systems engineer

position be established to coordinate the military's DACAS efforts.

The United States Joint Forces Command (USJFCOM) J89-produced DTA greatly expanded on the capability matrix developed by the Joint Fires Integration and Interoperability Team (JFIIT) at the request of the JCAS ESC. The DTA, a detailed examination of messaging capabilities, uncovered significant issues in the various Joint digital message formats, and implementations of these messages, that were preventing DACAS from becoming a warfighter reality. From the DTA, it was determined a near-term common message standard must be established to improve interoperability. Because of its maturity, formal configuration management, coverage of data elements identified by current close air support (CAS) doctrine, and the extensive number of existing and planned variable message format (VMF) platforms, the Joint Requirements Oversight Council (JROC) endorsed VMF over combat net radio (CNR) as the near-term message of choice for conducting immediate CAS.

The second product was the prioritized capability requirements derived from the JBMC2 Event 1 survey effort by JFIIT, where both aircrew and joint terminal attack controllers (JTACs) from the U. S. Air Force, Navy, Marine Corps, and United States

Special Operations Command (USSOCOM) were asked to rank 11 capabilities and 88 data elements. The survey data presented to the JCAS ESC resulted in their endorsing the top four information exchange requirements:

- a. 9-line brief/target coordinates
- b. Designated Ground Target (DGT)/Sensor Point of Interest (SPI) to JTAC and Forward Air Controller (Airborne) (FAC[A])
- c. Blue force tracks to all CAS participants
- d. Target area imagery marked with targets or DGTs.

The third outcome from JBMC2 data analysis bore the position of a single entity highlighting requirements and coordinating the implementation of those requirements across the joint force. Further, this recommendation caused USJFCOM J8/9 to develop the DACAS coordinated implementation (CI) action plan.

Coordination Implementation is an established process and forum for enhancing service-wide efforts to coordinate technical advancements in DACAS that advance DoD interoperability and results in a capability that provides the most timely and effective DACAS possible to ground troops. The CI action plan proposed minimal new infrastructure in an effort to provide enhanced capabilities to the warfighter in a fiscally responsible manner. The three groups that comprise the needed infrastructure are the DACAS CCB, the engineering change process group (ECPG), and the engineering change implementation group (ECIG).

The DACAS CCB interprets joint requirements and develops recommendations that promote interoperability using a DACAS system-of-systems (SoS) approach. The board develops and approves the content of SoS engineering change proposals (ECPs) so that the services can deliver tested increments of DACAS capability as required by the JROC and its joint fire support (JFS) ESC, within the established acquisition cycle of each participating program office.

The Joint DACAS CCB membership includes the participating system program managers and is responsible for ECP approval. DACAS CCB contributing members (Services and USSOCOM acquisition communities) will align resources to meet requirements derived from approved DACAS CCB changes. This means, when it comes to DACAS, the services, including USSOCOM, will work together to adopt or procure similar systems, technologies, capabilities, and methodologies to ensure 'interoperability' between service-specific weapon systems and platforms that will enable successful employment of DACAS across the services, per approved DACAS CCB recommendations.

ECPG membership includes representation from system program managers (SPMs), JFIIT, the Joint Systems Integration Center (JSIC), the Joint Interoperability Test Command (JITC), and Service Test Organizations (STOs) and is responsible for



Joint terminal attack controllers (JTACs) improve their skills using digitally aided close air support (DACAS) during an air-ground integration exercise. (Photo by Casey E. Bain, U.S. Department of Defense)

maintaining the engineering change management procedure.

ECIG membership includes representation from SPMs, JFIIT, JSIC, JITC, and STOs. The ECIG is responsible for coordinating implementation of the engineering changes detailed in the ECPs.

The approach used by the DACAS CCB to affect improvements to DACAS is a group of approved ECPs referred to as 'block upgrades.' The Block 1 upgrade began in September 2008, and will continue until certification and fielding is complete. The Block 1 upgrade focuses specifically on steps 11-15 of the CAS process (terminal control phase) as outlined by Joint Publication 3-09.3, Close Air Support, 8 July 2009, and consists of four ECPs:

- a. ECP No. 1—The Baseline DACAS Messaging and Radio Frequency (RF) Network
- b. ECP No. 2—The DGT/SPI
- c. ECP No. 3—Marked Still Imagery
- d. ECP No. 4—Exchange Network Parameters (XNP).

The aforementioned ECPs, which comprise Block 1, address three of the ESCs' top four information exchange requirements (9-line brief/target coordinates, DGTs/SPI to JTAC and FAC(A), target area imagery marked with targets or DGTs). With the exception of ECP No. 4, ECP numbers 1-3 do not add new capabilities, but rather provide a standard method of implementing the capabilities that, to varying extents, are already present in the participating systems. This may not sound revolutionary, but these modifications provide the critical foundation upon which further enhancements can be built. Previously, each program

could implement VMF over CNR according to its own interpretation of the three military standards (MIL-STD-188-220, MIL-STD-2045-47001, and MIL-STD-6017), forming the basis of the protocol stack. This led to numerous valid, but noninteroperable implementations of variable message format (VMF) over combat net radios (CNR). Now with a common implementation, basic CAS messages will function regardless of the ground control kit used or the type/model/series of the aircraft overhead.

ECP Number 4 brings with it a new capability of automatically creating and managing a network over CNR with limited user interaction. Akin to the Wi-Fi connectivity in your laptop, where you are never bothered with timing parameters, Internet Protocol (IP) addresses, or any of the other myriad of settings that enable the network to function, the implementation of XNP brings a similar ease to tactical networks. Using the Wi-Fi model, your equipment will inform you that a network is available and enable you to join it automatically or with a simple push of a button.

All four ECPs in Block 1 are approved and awaiting implementation in the participating platforms. The current Block 1 participants are listed below:

- a. Tactical Air Control Party Close Air Support System (TACP CASS), Air Force
- b. Target Location, Designation, and Hand-off System (TLDHS), Marine Corps
- c. Battlefield Air Operations (BAO) Kit, Air Force Special Operations Command (AFSOC) (USSOCOM)
- d. Net-Enabled Weapons (NEW), Air Force

A Canadian joint terminal attack controllers (JTACs) hones digitally aided close air support (DACAS) skills during exercise Atlantic Strike in Florida. (Photo by Casey E. Bain, U.S. Department of Defense)



- e. F/A-18, Navy/Marine Corps
- f. H-1, Marine Corps
- g. A-10, Air Force
- h. AV-8, Marine Corps
- i. AC-130, AFSOC (USSOCOM)
- j. B-52, Air Force
- k. F-35, Joint
- l. Pocket-sized Forward Entry Device (PFED), Army
- m. Forward Observer System (FOS), Army

Current experience shows JTACs and aircrews generally do not take advantage of the capabilities DACAS brings to the fight. This low utilization rate is due to numerous reasons: lack of confidence in the systems, uncertainty whether the supporting aircraft is compatible with the JTAC's DACAS system, and unfamiliarity with DACAS Tactics, Techniques, and Procedures (TTP). A coordinated implementation of a single standard assures interoperability and capability, simplifies execution, and allows the joint force to develop more straightforward TTP. Without the multitude of protocols and their requisite TTP, operator training becomes simplified, leading to increased confidence in DACAS systems by JTACs, JFOs, and aircrew and ultimately, greater utilization. Only then will the joint force begin to leverage the capabilities that DACAS can bring to the fight.

In summary, the interoperability Achilles' heel of DACAS is being shored up through a deliberate and incremental process that lays the groundwork for long-term growth. It is noteworthy that similar collaborative processes could be applied to address other joint interoperability challenges facing our military. While there are still numerous hurdles to cross in the DACAS arena, we are moving in the right direction to increase the lethality of the joint force.

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Mr. Leonard Longhenry served more than 23 years as a U.S. Marine Corps fire support NCO, artillery battalion liaison chief, regimental fire support coordinator, terminal attack controller, and air naval gunfire liaison company team leader, instructor, and evaluator. Presently, he is a senior analyst and joint Fires subject matter expert for the Joint Deployable Analysis Team part of the Joint Staff J8, located at Eglin Air Force Base, Fla.



# Digital Air/Ground Integration in Afghanistan: The Future of Combat is Here!

By U.S. Air Force Maj. Joseph Turnham, CPT Jared Cox, CW2 John Hicks, U.S. Air Force Master Sgt. Terry Kelly

**Integration potential.** For the past several years, a capability has existed within both the Army and the Air Force that would allow the Army's digital ground common operational picture (COP) to be viewed inside the cockpit of the Air Force's A-10C fighter aircraft. This allows the A-10C to view the COP on their tactical awareness display (TAD). For various reasons, this capability hasn't been utilized. I am not advocating that this was intentional, but rather this capability has fallen by the wayside as the demands of the Global War on Terror have driven our nation's military priorities in other areas. We, as a military, have an opportunity to bring this combat multiplying capability immediately to not only current theatre level operations, but also implement this at our military's major combat readiness centers (CRC) and other installations throughout the force.

For the past three years, 5/2 ID (SBCT) has worked diligently to enhance its air/ground digital integration to more fully take advantage of the advanced digital systems within both the Army and the Air Force. The testing process has been long but very successful overall. When the order came for deployment to Afghanistan, it was understood from the beginning that there would be digital integration challenges for the brigade when it arrived, but we would be able to overcome these obstacles. Throughout this process there has been tremendous support from organizations in the Air Force, namely the 422nd Test and

Evaluation Squadron, the 59th Tactics Squadron at Nellis Air Force Base, Nev., the 354th Fighter Squadron at Davis-Montham AFB, Tucson, Ariz., and 190th Fighter Squadron at Gowen Field, Boise, Idaho. What we understand at this time, after several years of improvement, training, and deployment is that the integration

works and the benefits, as a result of systems and equipment currently in place with both the Army and the Air Force, can be brought to any ground force network participant in addition to any air network participant. This can be accomplished not only in deployed areas such as Operation Enduring Freedom (OEF), but this

Figure 1. A-10C Moving Map with Friendly Position Symbolology



can be immediately implemented in garrison training environments, such as the National Training Center, Fort Irwin, Calif., the Joint Readiness Training Center, Fort Polk, La., and various Army posts, such as Fort Sill, Okla., and Air Force training exercises such as Red Flag, Green Flag, the Weapons School, Nellis AFB and to all Air Force gateway stations. Ground forces are utilizing Enhanced Position Location Reporting System (EPLRS), Land Warrior (LW), Blue Force Tracker (BFT), and International Forces Tracking System (IFTS) can be digitally networked to aircraft using Situational Awareness Data Link (SADL). At the present time in Afghanistan, the only aircraft that can do this is SADL equipped aircraft such as A-10C, Battlefield Airborne Communications Node (BACN), HH-60 Pave hawk, and HC-130s. More SADL aircraft are anticipated in Afghanistan before the year is out. In addition to SADL equipped aircraft, this ability, through proven and certified translation software, has now been extended to all LINK 16 participants. Link 16 aircraft include F-16B40, F-15E, Reapers, Predators and other platforms. What this means is every LINK 16 aircraft in Afghanistan, U.S. or coalition, which are network participants will have the ability to support any networked ground forces, U.S. or coalition, in every regional command (RC). The only limitation is the individual LINK 16 platform's internal avionics suite and its ability to process or display the data for the pilot.

**Airborne gateway.** The current architecture is set up to receive Blue Force tracker (BFT)/ Enhanced Position Location Reporting System (EPLRS)/Land Warrior / Enhanced Position Location Reporting System tracks through the Northrup Grumman (NG) Gateway Manager (GM). The GM translates the ground tracks from K05.1 messages to J2.0 messages that our Joint Range Extension (JRE) can process. The JRE then forwards the data out to the airborne network via MIDS/LVT 11. The primary point for pushing

this data out into the air network is done through the Kandahar Air Field (KAF) gateway with the Bagram Air Field (BAF) as a secondary means. The Battlefield Airborne Communications Node (BACN) aircraft provide the necessary line of sight extension (relay) that is required to blanket the theater with K/J-series messages.

For the SADL network, the data is pushed out of the KAF airborne gateway via K to K forwarding. K to K forwarding is accomplished by receiving BFT/EPLRS/IFTS tracks over radio frequency (RF) via an EPLRS radio that is connected to a VMF forwarding EPLRS radio that pushes the data to the SADL gateway SADL radio and then into the RF. BACN then relays this signal. If SADL capable aircraft within line of sight of the gateway select the KAF gateway mode, then this setup allows them to see the entire theater combined air and ground picture. In the future, the plan is to pull the BFT/EPLRS/IFTS data via Internet Protocol (IP) from C2PC (Command and Control Personal Computer) and send the data to the other theater gateways via IP to be pushed into the (RF).

**Army ground gateway.** In addition to each SADL equipped aircraft receiving the combined theatre air and ground picture from the SADL airborne gateways, each aircraft can actively synchronize its SADL radio to the EPLRS network of individual brigade air defense air management (ADAM) cells and receive the same combined theatre air and ground picture. This is a second back up for SADL aircraft and allows the aircraft to continually receive this combined theatre air and ground picture, no matter what technical difficulties are being encountered at the airborne gateways. In regards to the EPLRS/LW/ BFT/IFTS ground network, this is how it is set up at the brigade level to allow this direct joining of air and ground radios. The EPLRS/LW portion of the network is a Line of Sight (LOS) system that is limited to an approximate 45NM range per radio. BFT/IFTS is satellite based and

the brigade receives that feed at the brigade tactical operations center (TOC). The BFT position report is converted to an EPLRS position report via the brigade's BFT tunnel. This is why the 5/2 ID (SBCT) had situational awareness (SA) of every EPLRS/LW/BFT/IFTS ground track in Afghanistan.

The SADL aircraft receive the ground picture, while at the same time, they also receive a near real time air picture for the most complete (COP) available. The ground forces that are using Force XXI Battle Command Brigade and Below (FBCB2) and/or Land Warrior are also able to see the digital position of the aircraft on either the Force XXI Battle Command Brigade and Below (FBCB2) screen or their helmet mounted display (HMD). The brigade TOC is also able to display this information on its various command control communications computers and intelligence (C4I) and Army Battle Command Systems (ABCS). This allows all of the TOCs (battalion and brigade) to receive a near real time situational awareness of all EPLRS/SADL/LW/BFT/IFTS network participants in this case. The potential for fratricide is substantially reduced among all participants.

In order to establish a robust ground network while employing EPLRS, it is vital to position EPLRS radios in elevated locations over a wide geographic range. In RC(S), the brigade's Air Defense Air Management (ADAM) cell has an EPLRS radios loaded with SADL firmware managing an air to ground gateway. A second EPLRS radio has been installed into the BACN jet in addition to the standard SADL radio payload. The BACN jet flies at a high level and provides a substantial line of sight boost to the ground network. Other EPLRS radios have been installed into key aerostats located at strategic locations throughout the brigade's area of operations. Due to both the terrain and the distances at which the brigade operates, more elevated platforms are needed to establish a more robust, reliable network. Regional Command—

South was not prepared for the line of sight challenges of an EPLRS based brigade. This was not intentional, but more based on the lack of digital infrastructure necessary to adequately support an EPLRS based brigade. The brigade is currently pursuing other elevated platforms on which it can place EPLRS radios. Each new environment that a brigade operates in will come with these same terrain and LOS challenges. A brigade combat team needs to be proactive in overcoming these line of sight challenges.

One feature of this network is the ability to digitally pass targets/messages from ground forces to aircraft and vice versa. The key to this is the ADAM cell's Air Defense Systems Integrator (ADSI) computer. Land Warrior Soldiers are able to send SALUTE reports to FBCB2 and, in turn, to the battalion and brigade C4I and ABCS computers. All of EPLRS,

LW, C4I and ABCS computers in the brigade utilize K-series messaging. The exception to this is the ADSI computer of the ADAM cell. It utilizes J-series messaging. When a target needs to be sent to the aircraft, the ADSI operator simply types in the target type and the location and populates this information to the SADL aircraft. The aircraft can populate targets for ground forces by doing the same thing. The target appears on the ADSI. The operator then inputs the grid into the ABCS computers and it populates to the rest of the brigade. There is command and control at every level of the process. Not only can the system send enemy targets back and forth between ground and air participants, but civilians on the battlefield can also be designated back and forth as well. Additionally, the ADSI operator can send text messages to the pilots to help pass additional information,

as well as being able to receive text messages from the pilots. There are many more message icons that can be passed back and forth between air and ground participants, but the operational terms that exist between the Army and the Air Force are such that great confusion can ensue. For example, the Army uses the term 'target' to denote something of interest, not necessarily something that is to be destroyed. The Air Force uses the term 'target' to denote something that will be destroyed. The Air Force uses the term Sensor Point of Interest (SPI) in the same manner the Army uses target. These types of examples are wide spread. It is for this reason that tactics, techniques and procedures (TTPs) are developed methodically between all participants.

There are advantages and disadvantages of the network as currently constituted. Some of the advantages of the system are, but are not limited to, increased situational awareness for all network participants. Aircraft have a greater ability to know where both friendly and civilians are in relation to the target as they employ munitions. Battlefield intelligence, in the form of target passage from air-to-ground and ground-to-air is greatly enhanced for all parties by all parties. Some limitations include the ground network having gaps in EPLRS/LW coverage. Even though there are EPLRS radios in elevated locations, there are still gaps or blackouts in coverage. This is mostly a function of terrain coupled with distance. There are not enough radios in elevated locations. What is needed are more aerostat balloons, Rapid Aerostat Initial Deployment (RAID) towers, or Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) type platforms with EPLRS radios. Additionally, more BACN platforms that have the ability to carry both EPLRS and SADL radios at high altitudes with long loiter times that can provide network extension for ground forces and airborne gateway extension for aircraft 24 hours a day. The BACN

Figure 2. A-10C Targeting Pod with Friendly Position Symbolology





Figure 3. A-10C HUD with Friendly Position Symbology

platform provides the necessary range extension for both the ground network and the fighter's airborne gateways allowing this ability to be utilized over most of Afghanistan at present. Additionally, BACN has developed a certified K to J message translation software that will allow for the translation of ground positions to all LINK 16 aircraft in Afghanistan. The full digital ground picture is provided by 52 ID (SBCT), and BACN makes it possible to push this ground picture to every aircraft in Afghanistan. More BACN aircraft are needed in Afghanistan as soon as possible to provide all of Afghanistan 24-hours a day coverage.

This digital integration can also be used in other theaters of operation just like in Afghanistan. Iraq possesses F-16B30 SADL aircraft and EPLRS based brigades, such as a Stryker brigade currently stationed

there. With the addition of BACN aircraft and the messaging translator, this level of digital integration can be incorporated in that theatre. All of the necessary pieces are in place to be able to integrate at least SADL aircraft with EPLRS ground units. BFT tunnels can also be procured and set up just as the tunnel in 5/2 ID (SBCT).

**SADL Aircraft (A-10C) perspective.** Air/ground digital integration does not change the fundamentals of close air support (CAS). Pilots still require the same information on friendly positions and target locations. It does, however, change the means by which pilots can receive this information and how it's displayed for battle tracking. Digital integration can also expedite the assimilation of this information, permitting more rapid weapons effects for supported ground forces. A typical A-10 CAS

scenario in Afghanistan illustrates these capabilities.

In Afghanistan, A-10s rarely fly the mission for which they were tasked before takeoff. Typically, they are re-tasked once airborne to support a troops-in-contact (TIC) priority event, or an immediate tasking of which they have no prior knowledge. En route to this new tasking, pilots study maps and imagery looking for key terrain, lines of communication, and any tactical reference points (TRPs), which will aid their situational awareness (SA) once arriving on station. They also attempt to ascertain friendly locations. In the past, friendly information was only available once line of sight (LOS) communication was established with the joint terminal attack controller (JTAC). Due to terrain, this typically occurred within 25-50 NM range or for an A-10 within five to 10 minutes of arriving overhead. With friendly EPLRS/LW/BFT/IPTS tracks being pushed onto the SADL gateway pilots can begin building friendly SA from more than 100 nautical miles away.

As pilots conduct their target area study en route they can reference the EPLRS/LW/BFT/IPTS on their moving map, and see approximate friendly positions relative to the TRPs they have established (Figure 1). At approximately 25-50 NM they are able to view these TRPs and the friendly EPLRS/LW/BFT/IPTS tracks through their targeting pod (TGP) (Figure 2). Since voice communication is typically available at this range pilots can also begin correlating what they see digitally with the JTAC's area of operations (AO) update. Inside 10 NM pilots can visually acquire these TRPs and see friendly EPLRS/LW/BFT/IPTS tracks in their heads-up-display (HUD) (Figure 3). As a result of these steps, pilots can arrive overhead with friendly situational awareness, if not actually see the friendly forces. When target information is passed digitally, such as with J3.5 land tracks, pilots can use a similar process to gain target ID as they proceed into the AO.

These steps can not only expedite friendly SA and target ID by minimizing coordinate passage and read back, they can also decrease the likelihood of a pilot entering incorrect coordinates into navigation and targeting systems by enabling a direct, machine-to-machine interface. In addition, by providing this information on the SADL Gateway, pilots are provided a combined air and ground picture. This point is important because pilots also use SADL to obtain SA on other aircraft in their AO, exchange information with their flight and inbound aircraft, and obtain tasking information from command and control (C2) agencies. To remain viable this information must continue to be passed through the SADL Gateway (or LINK-16 network) so pilots can maintain a combined air and ground picture.

Despite its advantages, friendly and target tracks available through air/ground digital integration cannot be blindly trusted. They are merely a means to provide this information more expeditiously in a visual format which increases fighter SA and expedites weapons effects for ground forces. They do not alter CAS procedures. Friendly positions and target locations must still be confirmed, especially since experience has shown not all friendly positions are marked by EPLRS/LW/BFT/IFTS tracks (Figures 4, 5).

**Rotary wing digital integration.** To date, digital integration for most rotary-wing assets has been limited to BFT. Certainly, the potential exists for rotary-wing assets to develop tactics, techniques, and procedures for increasing friendly SA and expediting target ID similar to those in use by CAS assets. Such developments would also facilitate the employment of combined arms for ground forces. To an outsider, SADL would seem a logical choice in this endeavor since EPLRS/LW is used by US Army ground forces. LINK-16 seems a less viable option since it is by design an air-air data link network requiring extensive workarounds to be viable for air-ground usage.



Figure 4. A-10C Targeting Pod with and without Friendly Position Symbology

In its present state, BFT does facilitate rotary wing integration with fixed-wing assets capable of displaying BFT (like the A-10C). These BFT tracks have proven extremely useful for escorting rotary-wing assets, particularly when these rotary-wing assets are blacked out during night operations. BFT tracks also facilitate combined attacks by permitting SADL equipped CAS assets to see close combat aviation (CCA) positions on their moving maps as means of confirming pre-established, de-confliction measures during attacks.

As far as U.S. Army rotary-wing integration, there is very little digital integration. Current rotary-wing aircraft have been fielded BFT, which is not entirely compatible with the EPLRS/LW systems. Again, BFT positions, through the BFT tunnel, are translated into EPLRS/LW/SADL positions. BFT Information is fed to EPLRS/LW/SADL, but no aircraft information is fed back to BFT.

For example, when the ADAM cell populates an enemy target on LINK 16 and the ABCS computers, the associated ground and fixed-wing participants receive the information, but the rotary-wing aircraft do not. The brigade has to take the additional step of plotting that target on a BFT system in order for the rotary-wing aircraft to get the target.

U.S. Army aviation is trying to find a means to operate in a digital joint/coalition environment. One idea is to use a Multifunctional Information Distribution System (MIDS) radio to connect into LINK 16. Although the MIDS radio is a viable option, it would not work well with the current EPLRS/LW/IFTS/SADL network. With the emerging success of EPLRS/LW/IFTS/SADL, its ease of use, and its ability to integrate into LINK 16, coupled with the cost savings, it would make more sense to put an EPLRS/SADL radio into rotary wing aircraft. With the 80 plus ADAM cells from the brigade combat team

(BCT) to Corps level in addition to joint/coalition partners that employ similar ADAM cell formations that employ EPLRS/SADL radios, it would provide a much broader range of maneuver support possibilities.

**EPLRS/LW/SADL in a COIN environment.** The potential of this network in a counterinsurgency (COIN) environment cannot be understated. Insurgents hide amongst the local population in an effort to reduce the coalition force's ability to strike directly at them. The most important tenet in a COIN environment is to separate the insurgent from the population with as little collateral damage as possible. This network is able to accept targeting input from participants in a near real-time manner. Participants can use this information to adjust their lethal/non-lethal actions to the most beneficial course of action. Now both ground forces and air forces have the ability to know where the other is at all times, thereby reducing

fratricide. In addition, the network participants can make each other aware of civilians in the vicinity of kinetic operations and can further avoid unnecessary loss of life. In essence, all players become much more surgical in their ability to root out insurgents among the population.

The means to incorporate this air/ground digital integration is already here. The Army and the Air Force already have the equipment in the inventory to put this force multiplier into action. With budget constraints on the horizon, this capability costs the joint force virtually nothing. What is needed now is the joint leadership to turn this from a small group of joint users into a common method of operating on which we train every day throughout the joint force. With this technology already in place, we can continue to develop and enhance an already capable digital system and provide our military with a decisive edge to defeat our enemies.

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Captain Jared R. Cox is currently the battery commander for Bravo Battery, 2nd Battalion, 2nd Field Artillery at Fort Sill, Okla. His previous duties include assistant squadron fire support officer for 4th Squadron, 6th Air Cavalry Regiment, troop fire support officer and assistant squadron fire support officer for 8th Squadron, 1 Cavalry Regiment, and assistant brigade fire support officer for 5/2 ID (SBCT) at Joint Base Lewis-McChord. Cox is a graduate of Idaho State University with a Bachelors degree in Spanish.

Figure 5. A-10C Targeting Pod with and without Friendly Position Symbology



Chief Warrant Officer 2 John Hicks is currently the command and control (C2) systems integrator for I Corps G3 AMD Element at Joint Base Lewis McChord. Hicks' previous experience is as the C2 Systems Integrator for HHC, 2/2 ID (SBCT), Fort Lewis, Wash., (formerly HHC, 5/2 ID (SBCT), the AD C2 systems integrator (WOBC): Bravo Battery, 2nd Battalion, 6th Air Defense Artillery, Fort Bliss, Texas, WOCC at HHC, 1st WOC, Fort Rucker, Ala., the information systems team chief with HHC, 1st AD DISCOM, Wiesbaden, Germany, and the senior information systems operator-maintainer from HHC, 1st AD DISCOM, Wiesbaden, Germany.

U.S. Air Force Master Sergeant Terry Kelly is currently serving in the United States Air Forces Europe, Aviano AFB, Italy as a joint interface control officer with the 31 Fighter Wing, at Aviano AFB, Italy. Kelly's operational experience has been as a superintendent, wing weapons and tactics, 31 Operations Support Squadron. He has also served as a joint interface control officer at Nellis AFB, Nev. Kelly has deployed in support of Operation Enduring Freedom three times.

# Joint Air Ground Integration Cell

By LTC Stephen A. Wertz



SGT Mark Ramirez supervises as U.S. Air Force Senior Airman Joseph Perry of the Expeditionary Civil Engineer Squadron loads a 155 mm illumination round into the breech of a Paladin mechanized howitzer. (Photo by SSG Brendan Stephens, U.S. Army)

Lessons learned from U.S. combat operations over the past several years have highlighted significant difficulties in integrating airspace control and Fires deconfliction over and within a ground commander's area of operations (AO). These difficulties are due to the significant increase in unmanned aircraft systems (UAS), multiple supported commanders within the same area of operation, doctrinal disconnects, and the lack of reliable communications and a common operating picture, which has resulted in ad hoc organizations and processes. Currently, there is no single command and control authority/system facilitating horizontal component integration of all air-ground operations at the tactical levels at which decisions must be made. The inability to integrate all airspace users, Fires, air defense

and airspace control in near-real time restricts combat effectiveness, efficiency and increases risk. As the airspace becomes denser in today's operations, the U.S. Army and Air Force believe, a joint cell operating with the proper authorities will lead to more responsive Fires and a better integrated airspace.

The joint air ground integration cell (JAGIC) is the result of a five-year Army-Air Force Integration Forum effort to integrate airspace control and Fires over and within a ground commander's AO. The JAGIC concept's origin is from the V Corps operational use of joint Fires during Operation Iraqi Freedom I. The V Corps after action report (AAR) concluded, the most effective integration of joint Fires resulted from a close geographical relationship between the Fires cell, the chief of current operations and

the air support operations center. In September 2008, the Army-Air Force Board's General Officer Steering Committee approved staffing of the JAGIC Tactical Operating Concept.

In October 2008, CORONA (USAF 4-star conference) approved JAGIC development as one of a series of measures designed to bolster airmen in the theater air control system. Joint Air Ground Integration Cell was subsequently briefed at the February 2009 Army-Air Force Warfighter Talks and was well received. The Army and Air Force Chiefs of Staff fully support JAGIC and provided guidance to explore opportunities to exercise and implement the concept. The JAGIC has been exercised during multiple warfighting experiments since 2008, resulting in increased air-ground effectiveness during each exercise.

## Current Corps ASOC Operations

1. Senior Air Director
2. Airspace Manager
3. Procedural Control I
4. Procedural Control II
5. Crew Super
6. JARN I
7. GTM/JARNII
8. ATO Manager
9. Intel

## FY11 Division ASOC/ TACP Ops\* (X3)

1. Senior Air Director
2. Airspace Manager
3. Procedural Control I
4. Procedural Control II
5. Crew Super
6. JARN I
7. GTM/JARNII
8. ATO Manager
9. Intel (Analysis and Fusion)
10. Interdiction Coordinator
11. JTAC
12. Intel ISR Manager
13. Intel Targeting
14. EW LNO
15. Space LNO

\*ASOC will be scaled to meet division mission

Figure 1. Changes to ASOC/TACP Manning

JAGIC execution is based on a historically successful organizational setup and future procedural changes. JAGIC collocates and integrates Theater Air Control System personnel with the ground element. Its design is scalable to address commanders' mission command integration challenges during all phases of operations. Through respective service elements, JAGIC exercises decentralized execution authority, empowered by the respective component command and Joint Force Command designated authorities. Air Force personnel control Joint Force Air Component Command assets and Army personnel control Joint Force Land Component Command assets.

The Joint Air Ground Integration Cell is composed of elements from an air support operations center, tactical control party, and Army division functional cell personnel from the Fires, airspace control, air missile defense, and aviation cells. While JAGIC is an integrating cell in its own right, it will typically function in concert with the division current operations integration cell. Operating as a single, cohesive cell, JAGIC builds Soldier-Airman personal relationships resulting in improved communication effectiveness leading to more rapid decisions based on better information improving effectiveness and reducing risk.

Joint Air Ground Integration Cell is more than just another operating

cell. It consists of processes designed to enable joint Fires and integrate airspace users at all echelons into a cohesive Fires/airspace operation. The JAGIC enhances division Fires and effects by rapidly and efficiently responding to requests for joint Fires by coordinating with the necessary air and ground forces to enable the delivery of Fires in a timely manner. The JAGIC provides an increased Interdiction capability that allows for the coordination and attack of emerging targets beyond the division's ability to engage and enables the division to coordinate and integrate killbox/strike coordination and reconnaissance operations. The JAGIC can also coordinate division Fires in support



of JFACC interdiction targets. Through intelligence, surveillance, and reconnaissance fusion, targeting, and Fires coordination, JAGIC enables more rapid massing of Fires, and precise attack of high value, time sensitive targets within the division area of operation. The JAGIC extends situational awareness for air missile defense operations, and through the close integration of surveillance, reconnaissance, Fires, and airspace control, friendly force identification is enhanced. In the airspace management arena JAGIC enables the division to rapidly coordinate, deconflict and integrate airspace with other theater airspace command and control elements.

**Air Support Operations Center Enabling Concept.** The 2010 Army-Air Force Liaison memorandum of agreement states the Air Force will provide “a modular ASOC in direct support to the Army tactical command echelons (e.g. division and/or corps), as the focal point for supporting air operations. As a direct subordinate of the Air and Space Operations

Center, the ASOC is responsible for the direction and control of air operations directly supporting the ground combat element.” ASOCs are now being habitually aligned to each of the 10 active duty Army divisions. Operational capability is projected to be FY15. Aligning ASOCs provides the capability to more effectively command and control close air support and interdiction operations within the division’s area of operations.

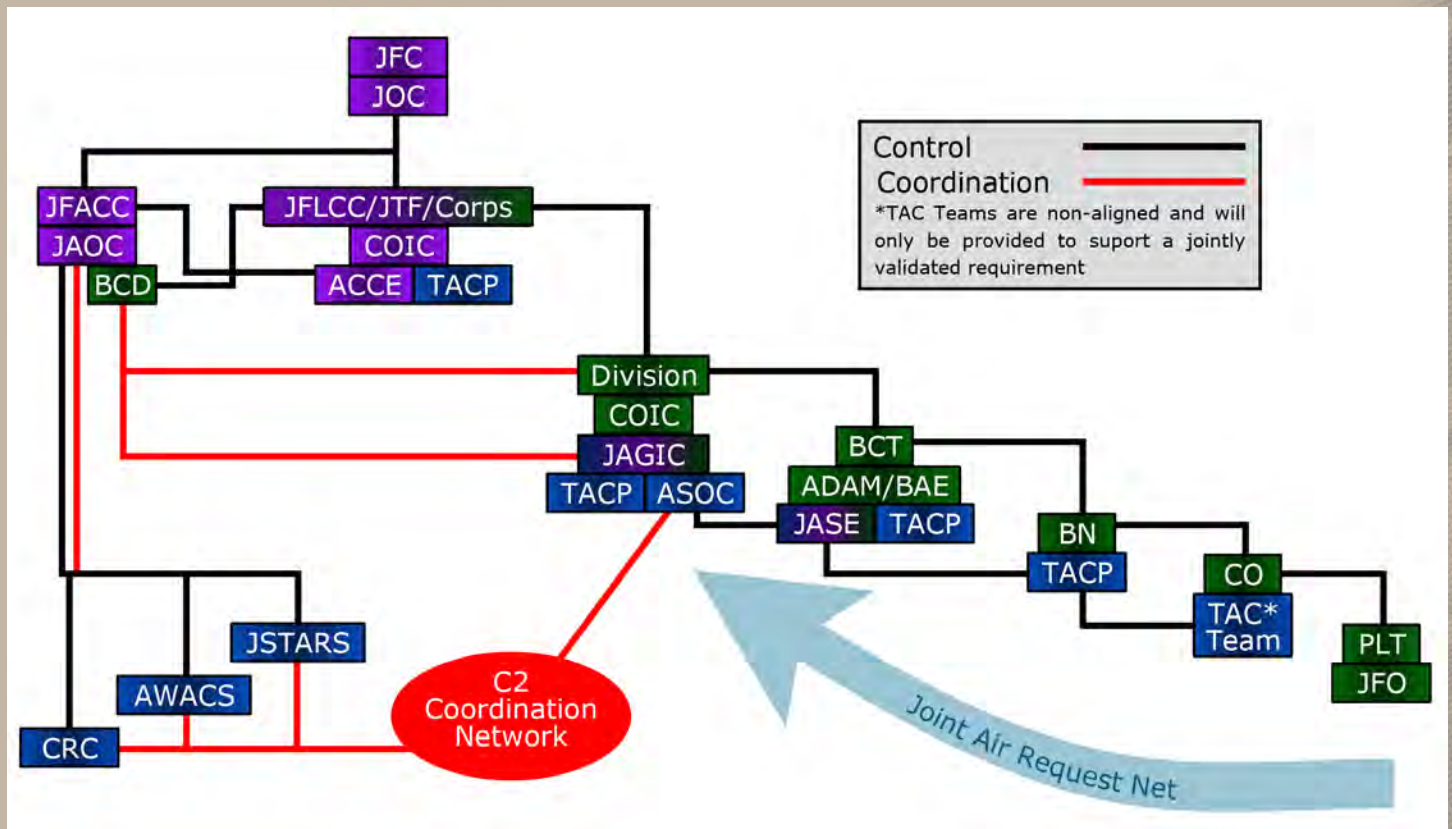
Integrating ASOCs and TACPs with division Fires, airspace, AMD, and aviation personnel and functions gives the division a powerful joint team capable of collaborative Fires/airspace execution. In conjunction with the ASOC’s move to the divisions, the Air Force is also bolstering the TACP’s capability by adding new positions and additional manpower.

As part of JAGIC, the ASOC and TACP are fully incorporated into division operations to support the commander’s objectives. Additionally, these air component command and control elements

ensure the joint force air component commander’s intent and objectives are represented in the Army division. The airmen in JAGIC also link the airspace control authority and area air defense Commander roles to the division, enabling more streamlined airspace coordination and air missile defense procedures.

**Theater Air Control System-Army Air Ground System.** The introduction of the ASOC at Division level produces changes to the Theater Air Control System and the Army Air Ground System. In the planning realm, divisions still plan and submit ATO target nominations and preplanned CAS requests to a higher headquarters (corps, component) prior to nominations being passed to the JAOC (via the BCD) for inclusion in the ATO. The execution realm is where JAGIC alters the current TACS-AAGS. By moving the ASOC to division level, the division is now responsible for some, or all, (depending on the Army’s presence in the theater) of the Army’s distribution of CAS assets to

Figure 2. Revised Theater Air Control System/Army Air-Ground System



its subordinate units. In a situation in which the corps isn't the senior tactical echelon, the division will be responsible for the distribution decisions that formerly resided at corps. During operational execution, ASOC personnel working in JAGIC receive and process immediate CAS requests, scramble or divert air component aircraft to meet approved requests, accept hand off of JAOC assigned aircraft from Air Force command and control controllers (CRC, AWACS, JSTARS), and prioritize and direct aircraft to brigade, battalion, and company TACPs or kill boxes for mission execution. Having the JAGIC at division level provides the division the ability to work directly with the JAOC for Interdiction operations and gives them a link into the JFC and JFACC Theater Intelligence picture. In effect, it moves the decision-making and coordination for Fires and airspace an echelon closer to the battle.

**JAGIC in division operations.** JAGIC is designed to fully support and enable division current operations through the rapid execution and clearance of Fires and airspace. As such, JAGIC is fully synchronized with the current operations integration cell. The JAGIC executes Fires and airspace operations under the authorities and in accordance with guidance received from the division commander and receives operational guidance and closely coordinates operations with the division chief of operations. To ensure JAGIC operations are synchronized it should be located in close proximity to the COIC.

The JAGIC is a current operations cell. In order for it to be effective it must also be fully synchronized with the DIV ACE. Division intelligence and targeting is developed in the ACE. Once targets are developed they are transmitted to JAGIC for execution.

Each division will tailor its JAGIC to meet the individual mission requirements of its current operations. The aim of this article is to inform the Fires community of

this increased capability that will soon be resident in each division and to provide a baseline to assist divisions as they begin implementing JAGIC. As the synchronizer of Fires and effects within the division's area of operation, the division chief of Fires is the executive agent, having oversight responsibility for the division JAGIC. He is the individual charged with ensuring division objectives are executed in JAGIC. The division deputy chief of Fires is the JAGIC cell chief. The JAGIC cell chief coordinates operations ensuring all Fires, airspace, AMD, and aviation operations are synchronized with division current operations. He works closely with the CHOPs in executing his duties. When Fires brigades are incorporated into division operations the division may charge the Fires brigade with operational oversight of Fires current operations. In this case the Fires brigade commander may be given executive oversight of JAGIC with one of his senior staff officers executing cell chief duties.

The senior Airman in JAGIC is the senior air director, who may also be the air support operations squadron commander and division ALO. In the event it is the division ALO, his designated representative will serve as the SAD for day to day operations. The SAD supervises USAF operations in JAGIC and ensures they are synchronized with Army Fires and airspace operations. He also ensures that JFACC objectives are being executed inside the division AO.

As required, JAGIC will incorporate other service liaisons (e.g. SOF, USMC) to assist in synchronizing and deconflicting their operations, Fires, and airspace requirements inside the division AO. Figure 3 presents a hypothetical diagram of how a JAGIC might be organized internally for operations.

**Joint air support element.** The Air Force team within the division JAGIC possesses the ability to push increased air command and control capability down to brigade combat team level for limited periods of

time for BCT-centric operations. During such operations, a four to six member joint air support element is taken from the division ASOC and moves down to BCT level to command and control CAS assets and execute airspace integration. Executing JASE in support of a BCT allows brigade TACPs to focus solely on their primary job of planning and attacking targets and improves the integration of Fires and air operations within the BCT AO and between the BCT and the division.

**JAGIC "Way Ahead."** As the Air Force begins aligning ASOCs with active Army divisions, the time to begin implementing JAGIC is now. In FY11, Air Combat Command and the Army Fires Center of Excellence are supporting JAGIC implementation during several warfighting experiments and full spectrum exercises. Earlier this year, we executed JAGIC during the Air Force's Agile Fire III Warfighting Experiment and the Army's Joint Forcible Entry Warfighting Experiment. Both of these exercises helped refine JAGIC processes and structure. This spring, the 34th Infantry Division became the first operational unit to execute JAGIC during European Commands, Austere Challenge 11 exercise. The division task organized personnel from their Fires, AC2, Avn, and AMD cells with 4th ASOC and 124th ASOS personnel to form and execute JAGIC during the exercise. During the exercise, JAGIC successfully integrated multiple airspace users operating above the division AO into a cohesive operation, successfully executed artillery Fires, close air support and attack aviation against dynamic targets, and successfully coordinated for Fires and airspace clearance with the CAOC and adjacent components. The JAGIC provided the division with a flexible, joint agency that enhanced their ability to access joint Fires and integrate joint airspace users in support of critical division tasks.

We are taking lessons learned from previous experiments and exercises to the next exercise venue

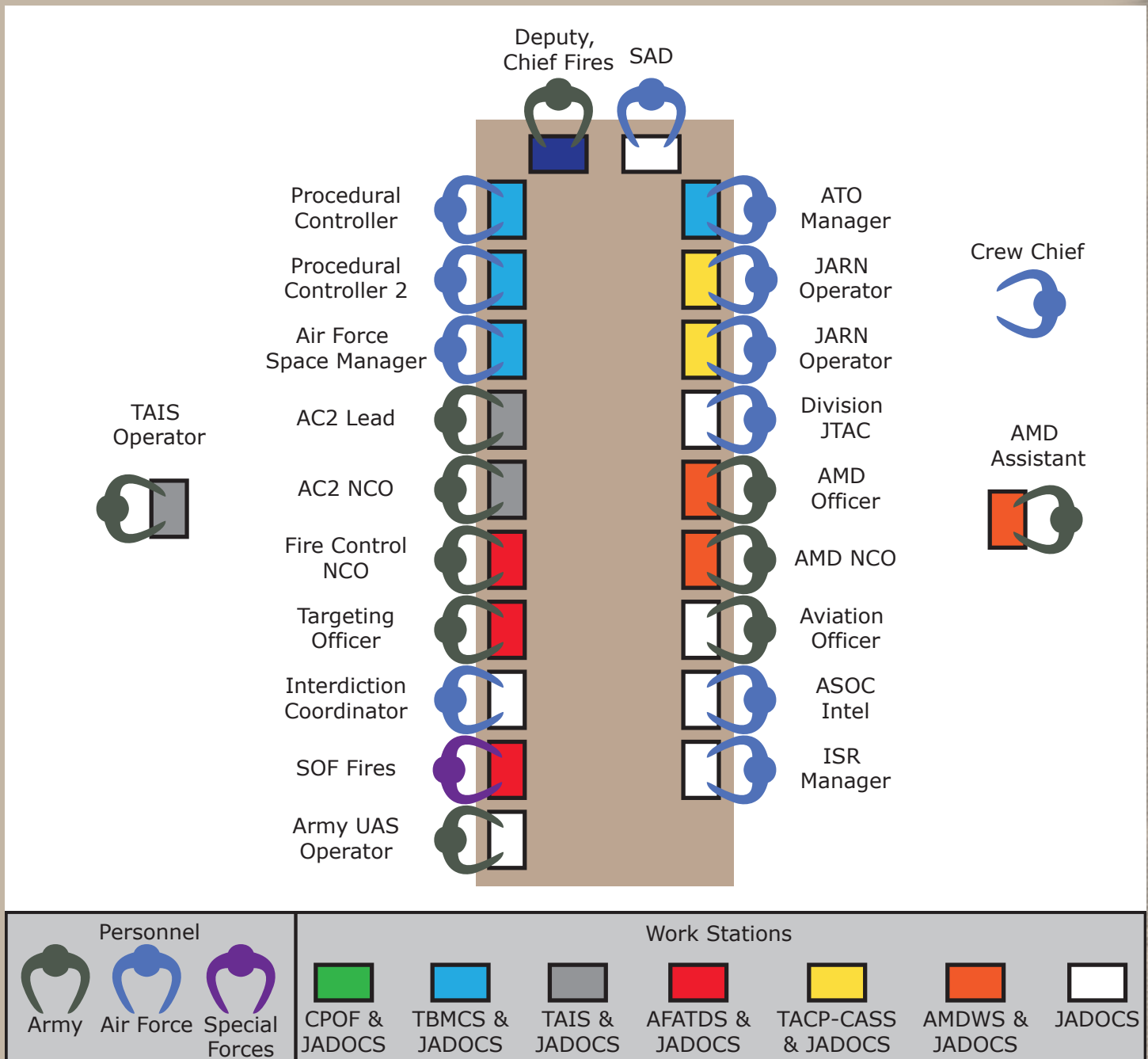


Figure 3. JAGIC Position Diagram

as 2nd Infantry Division executes JAGIC during several full spectrum exercises later this year. As ASOCs begin aligning with FORSCOM units the intent is to train and execute JAGIC in these units. This document will serve as the initial operational guidance for forces executing JAGIC. We will incorporate input and lessons learned from the warfighting experiments and operational exercises into refined JAGIC procedures and processes which will initially be published in

an Army TTP manual. Eventually JAGIC will be included in other Army, Air Force, and Joint doctrinal publication re-writes.

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SPC Jeremiah Holbrook, from 3rd Battalion, 7th Field Artillery Regiment, 3rd Brigade Combat Team, 25th Infantry Division, provides security in the Torkham Gate area, Nangarhar province, Afghanistan. (Photo by SGT Trey Harvey, U.S. Army)